The MINING CONGRESS JOURNAL

JANUARY
1932

AND

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1484M

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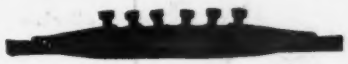

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THE MINING CONGRESS JOURNAL

JANUARY, 1932
VOLUME 18
NUMBER 1

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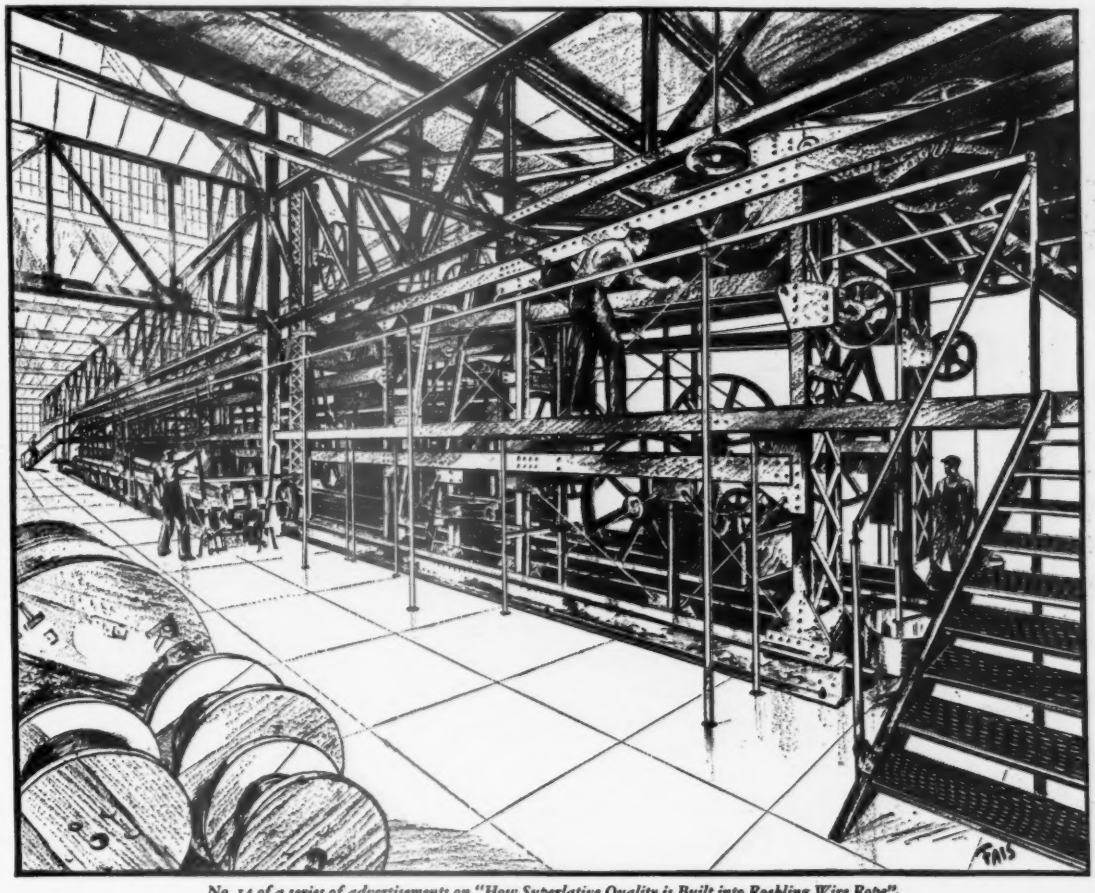

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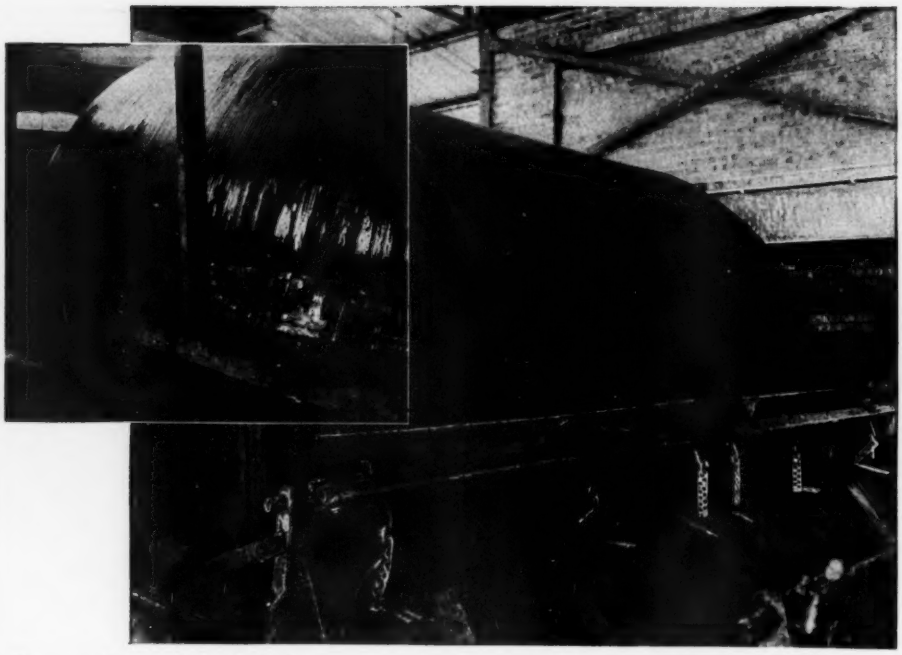
Careful expansion of distributing facilities has made Union Carbide available to every American industry from over 250 warehouse stocks. Sold always in the Blue and Grey drum, it has been the accepted standard for uniform high quality for more than 30 years.



The scraper blade on this filter had to be replaced every ten days or two weeks— ***until*** *—hard surfacing materials easily applied with the oxy-acetylene blowpipe increased its service life to three months.*

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JEFFREY 44-CC

The Jeffrey 44-CC in tramming position with small truck supporting the gathering head.

features...

A Pivoted Rear Conveyor

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Maintenance costs on the Jeffrey 44-CC are unusually low. Power cost is small—average demand is from 5 to 7 H. P.

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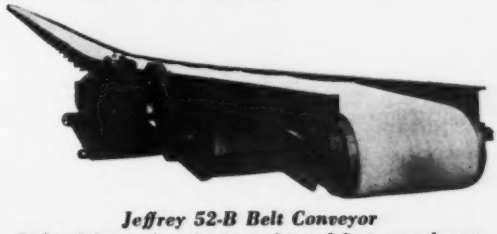
The Jeffrey Manufacturing Company
958-99 North Fourth St., Columbus, Ohio

Jeffrey 58-C Pit Car Loader

An all-steel chain type conveyor mounted on two wheels. Coal is loaded onto it at the face and the 58-C Pit Car Loader elevates it, carries it back and discharges it into mine cars. Easy loading features enable one man to load two to three times as much as when shoveling directly into mine cars.



Jeffrey 52-B Belt Conveyor

Designed for use in entry to receive coal from several room conveyors discharging laterally into it, or to receive coal from one or two long faces. It is sectional and may be extended to any length up to 1,500 feet or shortened as the entry advances or retreats. Made for either flat or troughed belt of any width up to and including 36". Capacity—up to 200 tons per hour at 100 F. P. M. belt speed.

Jeffrey 49-C Face Conveyor

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The MINING CONGRESS JOURNAL

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All On Account Of

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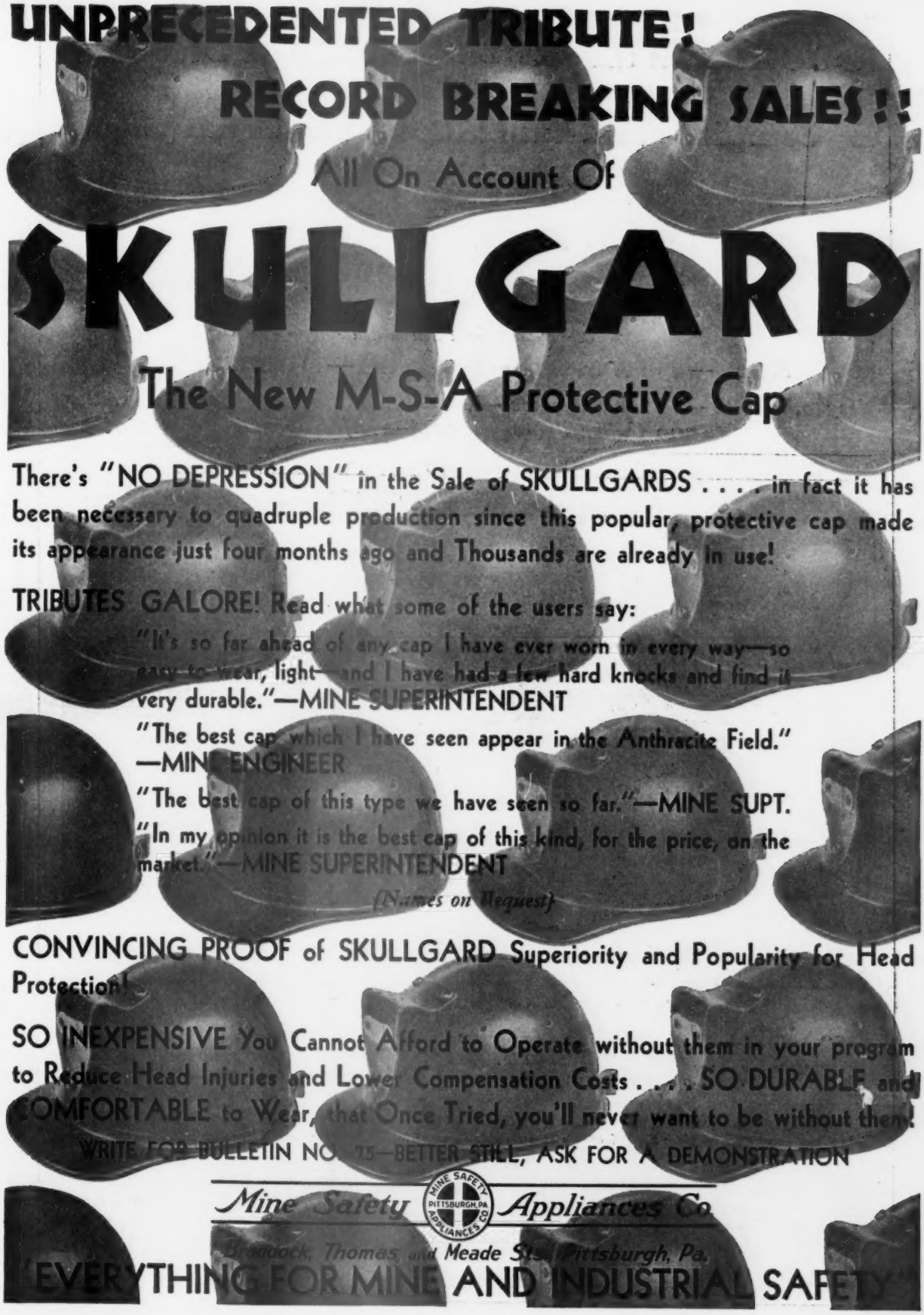
The New M-S-A Protective Cap



There's "NO DEPRESSION" in the Sale of SKULLGARDS . . . . in fact it has been necessary to quadruple production since this popular, protective cap made its appearance just four months ago and Thousands are already in use!

TRIBUTES GALORE! Read what some of the users say:

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"The best cap of this type we have seen so far."—MINE SUPT.

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(Names on Request)

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SO INEXPENSIVE You Cannot Afford to Operate without them in your program to Reduce Head Injuries and Lower Compensation Costs . . . . SO DURABLE and COMFORTABLE to Wear, that Once Tried, you'll never want to be without them!

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Mine Safety Appliances Co.

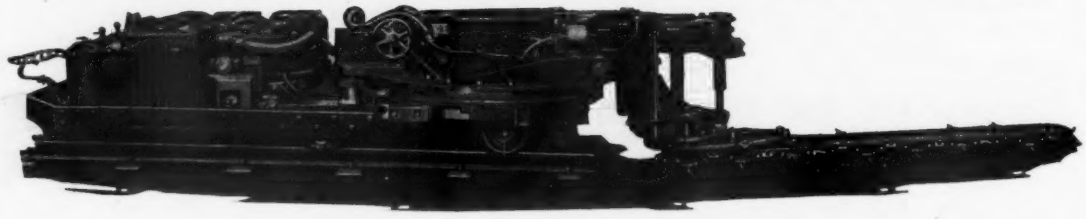
Braddock, Thomas and Meade Sts., Pittsburgh, Pa.

EVERYTHING FOR MINE AND INDUSTRIAL SAFETY

Goodman Mounted Bottom Cutters

for

Complete Mechanization of Undercutting



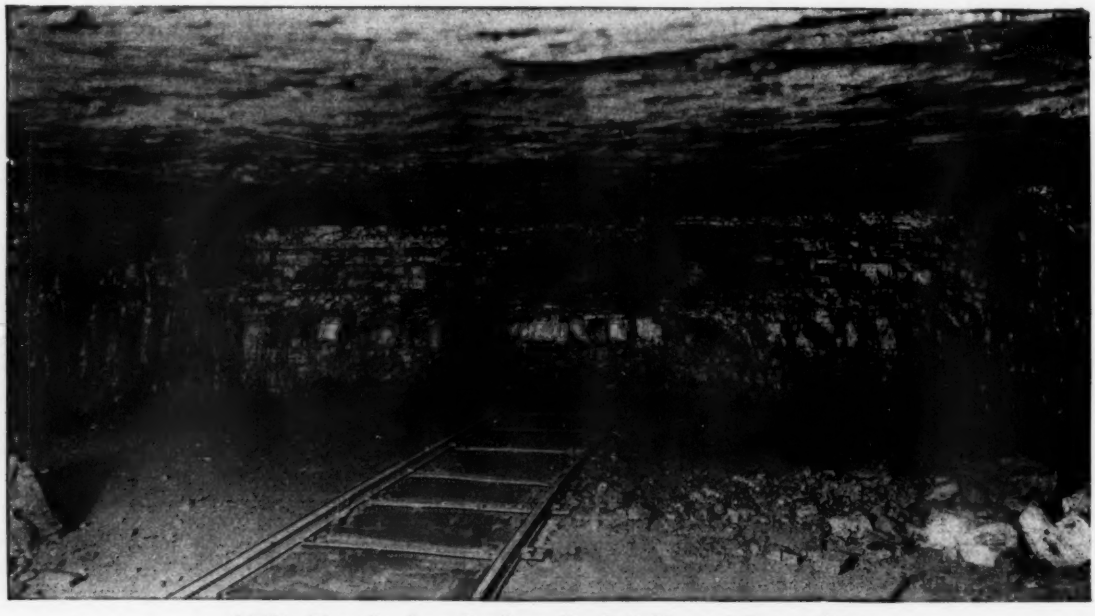
Low Vein Mounted Bottom Cutter

Safe—Powerful—Rugged—Accessible

Easy to Operate—Low Maintenance—Rapid in All Motions—Swing of Cutter-arm Under Geared Control—Self-Propelled

AND

It Cuts a Smooth Floor



A Wide Place Cut by a Goodman Standard Mounted Bottom Cutter

Two Types:	**Standard-Type 324**	**Low Vein-Type 424**
Overall Height	39 *in.*	30 *in.*
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(53)

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THE MINING CONGRESS JOURNAL

A Journal for the entire mining industry
published by The American Mining Congress

Our Today

THE United States at the dawn of 1932 stands almost completely submerged in gloom. Industry is at its wits end to meet its responsibilities; payrolls are greatly reduced, if not entirely foregone; a great army of unemployed is clamoring for relief; we are harrassed from within and from without.

The Mining Industry, second greatest national asset, can not much be blamed if it has adopted indigo as its daily diet. The ghost of busy days stalks through mine and mill. Everywhere the fog of gloom grows murkier; copper or coal—silver or lead—zinc or iron—echoes of the depression sound against and completely drowns the hum of whatever activity there is.

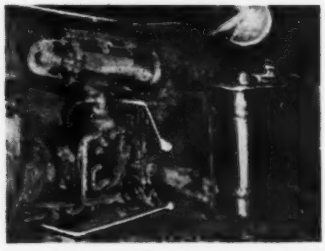
Is this mining gloom as real as it seems? Probably not. Bad as it is, it could be worse. Let us look at the record of mining for 1931—a year that admittedly was bad. In that year approximately 520,000 tons of copper were produced at an average price to the producer of eight and a quarter cents per pound; 59,735,000 net tons of anthracite were produced at an average price of $4.80 per ton; we produced 376,655,000 net tons of bituminous coal at an average return to the producer of $1.58 per ton; 390,000 tons of lead, at an average price of 4.25 cents per pound; 300,000 tons of zinc, at an average price of 3.68 cents per pound; and 31,068,000 gross tons of iron ore, at an average value of $2.62 per ton. The aggregate is a tremendous sum. It enabled the industry to employ thousands of men and it kept the wheels moving. Compared with peak years, that showing is not good. Compared with an average year, it is not so bad.

This year of trial has had its compensations, and mining seems to have learned, from its necessity, some vital lessons. The mining industry and independence are synonymous. It has asked no favor other than the privilege of meeting and solving its own problems. When compared with agriculture, its nearest competitor in national importance, its demands upon state and national governments for assistance clearly indicate what we mean by "independence." As the years have passed, it has found it increasingly difficult to maintain this independence and at the same time solve its problems. It has slowly learned the lesson of inter-dependence and cooperation.

As we stand on the threshold of a new year, we find the copper industry facing a year that demands courage, but we also find the producers facing it with a degree of cooperation with each other never before attained. Bituminous coal, facing much the same problems as copper, now is adopting more completely the fact that cooperative effort is essential to its progress. Silver is involved in international cooperation. Gold and silver, lead and zinc, copper and iron, and coal, each and all, are irrevocably bound together in the problems of production and distribution, not to mention politics, with its power to destroy through unwise legislation.

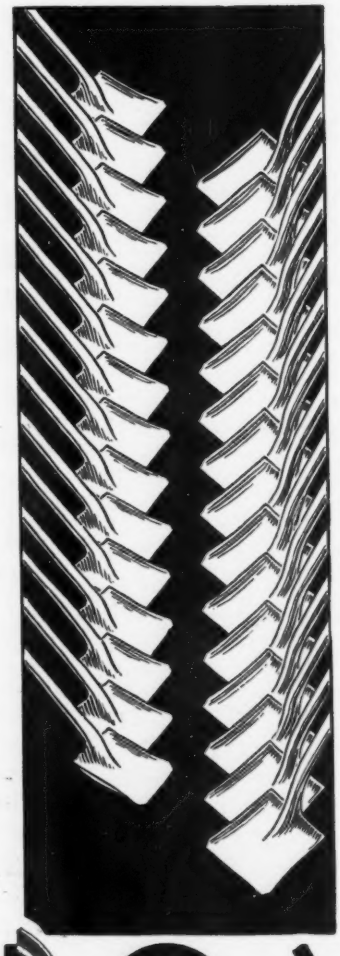
If mining has truly learned the lesson of c-o-o-p-e-r-a-t-i-o-n, the year ahead will end with the industry standing in the bright sun of prosperity.

CONTROL



# of this thirty hand-shovel-power

ALL OPERATIONS of the Joy Loader are controlled by one man. The average output of thirty good hand shovelers is at his command. Workings are concentrated, safety is increased and costs are cut. Joy machines are easily manipulated. They move from place to place on or off track. Their loading boom is adjustable over a wide arc. As they load they maintain a steady stream of coal at two tons or more per minute. The logic of their design and their sturdy construction explain their constantly maintained record for loading the greatest amount of all mechanically mined coal. Joy loaders operate successfully under most mining systems. We will gladly estimate the possibilities of Joy Loader production at your mine—at no obligation to you.



There are two types of open and permissible Joy Loaders. The 5-BU operates in coal 60 inches or more in height, while the 7-BU is for seams as low as 48 inches. Joy Loaders can save time and costs at your mine. Write for further information. JOY MANUFACTURING COMPANY, Franklin, Pa.

JOY

The
MINING CONGRESS
JOURNAL

JANUARY, 1932
VOLUME 18
NUMBER ONE

Editorials

The 72nd Congress

ON the first day of its session there were more than 5,000 bills introduced in the 72nd Congress. Only ten of them vitally affect the mining industry, but these ten "go places and do things." They propose: Government control of coal mines and oil wells; increase in corporation income and surtax rates; decrease in mining appropriations; placing tariffs on copper and oil; stabilizing silver and modifying anti-trust laws in the interest of natural resources.

What action will be taken on these bills can not be forecast. Congress now has before it ten times as many bills as were ever enacted in an average congress of two years duration. But of this we may be certain: mining will not be forgotten by the pros or the cons. It always has been a favorite son of the opposition—a political football of many administrations. We have no reason to believe that in its extremity Congress will overlook the mining industry. The balance of constructive and destructive legislation depends entirely upon the ability of the industry to get facts concerning its needs—and its own extremities—before members of Congress.

There Ought To be a Law

HOW familiar that title sounds. We hear it daily in office or factory, in public and in private; and we see its literal interpretation when our state legislatures or our national Congress are in session. Congress convened on December 7, and already more than 10,000 bills have been introduced. Obviously, we practice what we preach.

Is this a strange or is it a natural situation? Herbert Wilson Smith, economist and lawyer, tells us in this issue the *why* of the thing. He points out that the mystery is that there are not a hundred million bills, since there are something like that number wanting things, and Congress provides the forum for these citizens to express their legislative notions.

Our problems grow more complicated as the years pass and we become (at least numerically) a greater country. Congress must not be held wholly responsible for our over-supply of legislative demands or for the paucity of sound legislative measures advanced, because it is but the grist mill for millions, each of whom is convinced that "there ought to be a law passed."

Silver

SILVER looms large in our economic, legislative and polical discussions. It is a factor in international, national and state affairs. Congress has recognized these facts by presenting early in this session of Congress two bills designed to help silver; one providing for the "payment of foreign debts to the United States in silver" and the second authorizing a congressional investigation to "stabilize the value of silver."

We have stated before and again we repeat: The problem back of silver goes deeper than its profitable production. The fundamental cause of the world-wide business depression has been brought about mainly by the lack of a money medium of uniform value sufficient in quantity to conduct the business affairs of the world, and made non-fluctuating by having it tied to basic mineral reserves. This means the use of both gold and silver, because there is not enough gold in the world to serve this purpose.

Silver deserves the united help of the world. Its stabilization and proper utilization may be the means of again restoring confidence in the money markets of the world and may lead us back to the door of prosperity.

Prosperity and Wages

WITHOUT a profitable market the cost of production must be so diminished as to make sales profitable in a lower priced market. A Denver philosopher recently stated that a business which is holding its own at this time is making a net profit of 15 percent and that a salaried man who is receiving the same salary he did two years ago is having his salary advanced 25 percent. This was intended to convey the thought that a dollar today will buy as much of the necessities of life as $1.25 would have purchased two years ago. From what source can this 25 percent be deducted? It is evident that this must be taken either from operating costs or from wages. It is fallacy to state that a reduction in wages means a reduction in the independence or self-respect of the workman. The problem of shorter working hours is entirely aside from this question. We fully believe in the payment of the highest wages which the industry can stand without putting too great a burden upon the consumers of the product, but that it applies to the material which is used by the wage earner as well

as the material which he furnishes to other wage earners. It seems evident that a declining cost of living must in the end reflect itself in a lower wage level.

The generally accepted theory is to the effect that high wages are necessary to the highest prosperity; that prosperity is based upon the continuous flow of goods in commerce which can only be executed where the purchasing power of the public is sufficient to make for the highest consumption of goods. Undoubtedly, this theory is correct, but it is equally true that goods must be sold at a profit in order to stimulate continued production in the supply of a profitable market.

Machines and Unemployment

ONE of the reasons which is advanced to explain our present national unemployment is that men have been replaced by machines. The remedies suggested to bring back employment vary from the radical desire for complete machine elimination to the comparatively conservative thought that their further extension be restricted. Since it is obvious that neither of these courses will be followed it is not necessary to discuss their merit or lack of merit.

In accordance with this line of thought we hear a great deal against the mechanization of our coal mines. The opponents of mechanization are correct in their statements that machines have thrown coal miners out of work. But it is not machines used in coal mining that is causing unemployment in the coal industry. It is estimated that oil, gas, and improved combustion methods have replaced 100,000,000 tons of coal annually. This has naturally been followed by the loss of work for the men required to produce that tonnage.

This loss can be charged directly against the use of machines. It is difficult to estimate how many coal miners are thrown out of work by one oil or gas well drilling machine, by machines used in digging trenches and installing pipe lines, or by one oil refinery or gas pumping station.

So when the opponents of coal mine mechanization attribute the present unemployment in the coal industry to machines they are exactly right. But they have the "wrong pig by the ear" when they attribute this loss to machines used in coal mining. As a matter of fact mechanization is the one hope which the coal mines have to stop further losses and to provide more work at an adequate wage scale.

A Depression Product

IT IS inevitable that we shall see this winter many legislative proposals designed to right the wrongs caused by the depression. Our state legislatures and our national Congress, in the short period since their convening, have shown a very definite trend toward social legislation. An amazingly large number of associations, socialists, reformers, cranks, communists and well-intentioned persons feel inclined to the belief that they have discovered the cause and the cure for our present troubles. Their ideas all involve legislation.

Three recent newspaper items give pause for thought. The first tells of Peruvian legislation which provides (a) that no employer may lower wages, and (b) that no employer may discharge an employe. All that remains is to decree that no employer shall become insolvent. The second item announces the bankruptcy of Australia, and the government's offer to sell the railroads of the Commonwealth in order to raise funds for the maintenance of government. Australian governments, state and federal, own practically every mile of railroad in the country and the financial difficulties now facing the desperate citizens of Australia are said to be due principally to the inefficiencies of government operation.

The third item comes closer home. It announces the formation of a chapter of the League for Industrial Democracy in the City of St. Louis, its members being "physicians, lawyers, social workers, teachers and business men." St. Louis is said to be the fifth large American city to form such a chapter, and the aims of the organization are announced as "Production For Use And Not For Profit." It seems incredible that any human being with sufficient intelligence to be numbered among the classes enumerated could possibly fall for such a chimerical idea. We have long maintained that "intelligent selfishness is the mainspring of all human progress"; we believe that only hope of gain or profit will produce efficiency of production or operation; and that when possibility of remunerative reward is proscribed, all individual initiative ceases. Altruism in the production of necessities can never compete with the co-partnership between American brains and business.

The greatness of the United States rests firmly upon the foundation of individualism. The same principle, if given free reign, will solve our present troubles and build soundly for the future. The intelligent and loyal citizen will do well to keep informed upon legislative proposals and make his ideas clear to his representatives in state and national legislatures.

74 Years Ago

PERTINENT to our problems is the following which we present for whatever consolation it may bring to our readers. Old Man World is in a gloomy mood, but he seems to have been there before, as witness the following from an article which appeared in *Harper's Weekly*, October 10, 1857:

"This is a gloomy moment in history. Not for many years—not in the lifetime of most men who read this paper—has there been so much grave and deep apprehension; never has the future seemed so incalculable as at this time. In our own country there is universal commercial prostration and panic, and thousands of our poorest fellow citizens are turned out against the approaching winter without employment and without the prospect of it.

"In France the political caldron seethes and bubbles with uncertainty; Russia hangs as usual like a cloud, dark and silent, under the horizon of Europe; while all the energies and influences of the British Empire are sorely tried, and are yet to be tried more sorely in coping with the vast and deadly Indian insurrection, and with its disturbed relations in China. It is a solemn moment and no man can feel an indifference in the issue of events.

"Of our own troubles no man can see the end. They are fortunately as yet mainly commercial; and if we are only to lose money, and by painful poverty to be taught wisdom, no man need seriously to despair. And yet the very haste to be rich, which is the occasion of this widespread calamity has also tended to destroy the moral forces with which we are to resist and subdue the calamity."

It is perhaps startling that so many of the things written 74 years ago, apply with such force today.

One Idea

THE American Economic Association in a joint meeting with the American Statistical Association and the American Association for Labor Legislation heard papers and discussed at length on technological change as a factor in unemployment. It is well that industry give attention to these 3,000 people who meet during the Christmas holidays each year and devote enthusiastic attention to industrial, financial and economic problems as they may be affected by legislation.

A peculiar slant toward the condition of technological unemployment was expressed by Sumner Schlichter, of Harvard, who quoted a suggestion that a Federal Labor Board be authorized to pass on the issuance of patents with full authority to hold up the issuance of any patent, the employment of which might endanger the employment of workmen. While this thought was not given serious consideration by the meeting it illustrates the dangers which lie in the many suggestions borne of the present industrial situation, that the incentive to create and to excel which has made our country as great as it is today should be dulled and made impotent by such a method is unthinkable and un-American.

Coal Stabilization

STABILIZATION of the bituminous industry through a Federal Coal Commission which would authorize mergers, consolidations, selling pools and marketing agencies along the lines of the Watson bill of 1928, will be sought from Congress this session by the miners union with the backing of the American Federation of Labor. Statement to this effect was made by its president, John L. Lewis, in testimony before the Senate Manufactures Committee on a bill to create a national economic council.

This is a continuation of the effort of the United Mine Workers, to make coal the bell-sheep in the parade of Political Control of all natural resources.

Coal needs all the help it can get, but it does not need to become further involved in politics, and certainly should not be made the "noble experiment" of those who believe that the Government should control, direct, and wet-nurse industry * * * particularly raw material industry.

Tax Increase

MANY historians are firm in the belief that the history of almost every civilized nation that has fallen shows that its destruction was brought about by excessive increases in Government expenditures and ruinous taxation.

Be that as it may, the Government, like the rest of us, now finds itself in debt, with a steadily mounting deficit plainly visible. There is but one way in which the debt may be paid, and that is through increased taxes. The President's budget is commendable. It indicates that every effort will be made toward economy in running the Government. But it is a question as to whether Congress will agree. Already bills are before it that approximate billions of new money for new projects. The temptation to have the Government appropriate sums from which the "folks back home" will benefit in these unemployed days is one that few Congressmen will have the heart to resist. One bill presented asks that $5,000,000 be spent in the old home town!

But the real issue is how can we get more revenue. The President proposes reenactment of the income and corporation tax rates of the 1924 revenue law. Under this plan the corporation tax would be increased from 12 to 12½ percent. The new normal income tax rates would be 2 percent, 4 percent, and 6 percent, with surtaxes of 1 percent on incomes of $10,000 up to 40 percent on incomes over $500,000, as compared with the present normal rates of 1½, 3 and 5 percent and a maximum surtax of 20 percent on incomes of more than $100,000. An increase of 1 cent in the stamp tax on sales or transfers of capital stock is also recommended.

It will be well for Congress to keep in mind that taxes wisely assessed and administered do not destroy the things which produce the revenue. Grave importance attaches to the hearing before the Ways and Means Committee scheduled to begin January 13.

For the Doubters

THE Advertising Federation of America has just announced the results of a study of sales, earnings and advertising of many companies. The records prove that the individual firms which made an exceptionally good showing last year are in nearly every case those firms which have aggressively been making business instead of waiting for it to come.

In the first of a series of addresses prepared by the Federation, individual cases showing increase of sales over 1930 of 30 to 200 percent or more are cited.

For the "doubters" who may object that special cases were chosen it is well to call attention to the general summary. The study included all advertisers whose records were available. There were 97 companies on the list. Sixty-two of them actually spent more for advertising in 1930 than in 1929. The remaining 35 companies reduced their advertising in 1930.

The point is in what happened to profits. In the group which decreased the advertising, profits declined 55 percent in 1930. In the group which increased their advertising, earnings declined only 29 percent. In other words, the 62 companies which increased their advertising had a much better relative profit showing than the group which cut their appropriations.

It was found that the group of aggressive companies continued to increase their lead over the others in 1931. The group which increased advertising in 1930 actually earned 2 percent more profit in 1931 than in 1930. The other group, which reduced advertising in 1930, suffered a further shrinkage in profits, their 1931 earnings being fully 25 percent below 1930.

The fundamental fact applies to all business, that though economic disturbances, some of panic proportions and others less violent, may influence volume we are not helpless. The power to influence buying remains. We have the motive power. Intelligent, well directed efforts to distribute our products are even more important in bad times than in good.

In the business of mining and in the business of supplying the machinery and equipment used by the mines we so frequently hear "I can't advertise—business is terrible." These "wailers," if they could remove the weeping towel from their eyes a short time, would see close at hand in their own fields examples of aggressive business men who are not waiting for business to come to *them*.

The task of Congress in providing revenue

By Honorable James T. Collier*

THE subject which has been assigned to me is the "Problem of Congress in regard to Taxation." This is one of the great problems before the Congress. In these times I am afraid we are going to have a great many problems irrespective of taxation. But if the fortunes of politics should place the Democratic party in control of the House of Representatives next Monday, as we know, we will face a situation that is almost unprecedented in the history of our country. World-wide depression has become apparent everywhere. I would also like to say that this depression was more or less to be expected in view of what has happened in the last 12 or 15 or 16 years. Thirty-two countries were engaged in a war which shook civilization to its very foundations and almost rocked the universe itself; ten million men in the prime of their manhood were killed, crippled and maimed. It has been stated that at least two-thirds of the world's wealth and treasure and developed resources during that period were wasted, utilized or destroyed. That was the beginning of our cataclysm, as it were. There have been other things too that have brought this on; some of them natural—some of them unnatural. The question is what is confronting us today and if the Democrats take charge and organize the House next Monday, we will face, as I have said, an unprecedented condition in regard to financial affairs.

IN 1930, my friends, our expenditures of Federal expenses were approximately $4,000,000,000. In 1931 our Federal expenditures were approximately $4,200,000,000; only about 5 percent increase over 1930 as shown by the report at the end of the fiscal year—1930. Not so bad a showing. According to the reports at the end of the fiscal year 1930 (June) our revenues were approximately $4,180,000,000, leaving a surplus of $180,000,000. Now what happened in 1931. At the end of that fiscal year whereas our expenditures were $4,200,000,000, yet our total revenues from all sources were approximately $3,300,000,000, leaving a deficit of practically $900,000,000 which even we have borrowed. It is well for us to take an inventory and see how we stand and present the picture. I have only presented so far part of it, because it is stated by statisticians that at the end of this fiscal year—1932—there will be another deficit of $2,100,000,000, making practically a deficit of Federal expenses and expenditures over Federal revenues of $2,123,000,000, which we will have to meet.

Now, I am not speaking here today for the Democratic party. I do not know, my friends, any man who is at this time qualified to speak for the Democratic party. I am not even speaking as the prospective Chairman of the Ways and Means Committee, which I hope to be when Congress convenes within the next few days, unless the fortunes of politics should determine otherwise. I am speaking for myself when I speak. Now, what is the practical way, what is the only way to balance the budget? There are only two ways. One is to reduce expenditures to meet revenues. Another is if you want to retain the expenditures, to increase the revenue so as to take care of the expenditures. Now, what is the course to pursue under conditions like that? I know of only three ways of raising revenue—either by borrowing ortime. by taxation or by a combination of the two. So before we go into that, let's see how we can decrease expenditures. We have the immense amount of bonded indebtedness left over as a heritage of the war. Back in 1916 our national debt was two and three-quarter billion dollars. In 1919 the United States had a national debt of $26,000,000,000 and we still have a tremendous national indebtedness of something over $16,000,000,000 and the interest we are called upon to meet on that together with the necessary expenses that we have means that only in instances here and there can we pare off a few millions. Another thing we must bear in mind when we talk about reducing governmental expenditures, and I know I voice the sentiment of every patriotic citizen of our great government, that it must be as economical as it can be consistent with our position in the world. Whenever we make a particular cut in government payrolls we add to the great army of unemployed which has now assumed such large proportions. Now then, that leaves us the other methods. First, by taxation; second, by borrowing; third, by a combination of borrowing and of raising taxes. Now, we raise about 50% of our revenue from the income tax. You know the income tax places a tax of 5% on all incomes in excess of $8,000 and a surtax as high as 20% on the higher income. The highest rate ever made was 12% and our taxes on the corporations has been 12½%. It is now 12%. Now speaking for myself alone, this is hardly the time to raise the tax on corporations because 12% is about as much as a corporation should pay at the source. Excess profits taxes could not prove to be a very fruitful tax at this particular

(*Continued on page* 21)

* Congressman from Mississippi, Chairman, Ways and Means Committee of the House of Representatives.

Presented to Group Conference of the American Mining Congress, Washington, D. C., December 8, 1931.

"There ought to be a law passed"

By
Herbert Wilson Smith*

ALTHOUGH APPROXIMATELY 30,000 new bills are introduced in the completed sessions of a Congress, usually only 600 or 700 of them are passed. The first impression is that this is a huge waste of legislative effort, but we must remember that a very large part of legislative effort is for Congress to sort out of the 30,000 proposed bills the 600 or 700 considered worthy of passage. It may still seem futile to us that so many bills should be introduced and discarded.

If this article has a purpose that purpose is to contribute to the standard of informative value of Pullman smoking car conversation which usually starts with the phrase, "Well, the trouble with the Government is," and concludes with general and specific condemnation of all governmental activity, legislative, executive, and corrective. Our country is so full of this thoughtless criticism of federal government and of legislative bodies that it is interesting to trace the origin of public thought which finally crystalizes itself into law.

Two major principles, as we all know, govern human conduct—the hope of reward and the fear of penalty. Most legislation is in accord with the latter principle and therefore of a restrictive nature. Of recent years, there has been a large influx of proposed legislation, more paternalistic in character based on the first principle, in which is held out the hope of public betterment by legislative enactment. Much of this is introduced without real hope of enactment so that, in the main, that legislative activity which results in enacted law has its inception in desired restriction. The procedure by which legislative objectives are obtained, or by which a bill becomes a law is simple and well defined. The progress of legislation from its first inception in the mind of the individual until it becomes a law which is administered by an executive branch of the government to produce its effect on individual action is best shown graphically. To make this process plainer, the accompanying chart has been prepared. This chart shows the process by which legislation is accomplished or defeated and the avenues through which its purposes are put into effect, and carries legislative history through to its period of complete accomplishment into enacted law. Whether it be a long patient farmer at a cross-roads store, a worried banker or a returned exporter who feels we are not getting our share of foreign trade, the remedy offered for economic conditions is the same. None of us is guiltless. "There ought to be a law passed" is our first thought and it is this desire to achieve utopia through legislative enactment, to have a legislative panacea for every ill, that causes the introduction of twenty to thirty thousand bills in every session of Congress. Yet this is not a surprising number. The surprising thing is that 100,000,000 bills are not introduced into each session, each one representing the legislative idea of some citizen.

One of the most important factors of our government is that every citizen has this forum through which to express his legislative ideas. Through his representative in Congress he may give expression to his idea for any proposed legislation to correct a condition which seems to him, unfair. If enough of his fellow citizens agree with him, his idea will become a law. The effect of this on our government has been to make it continuously stable. In all the years since its establishment it has never been overthrown. This legislative forum which we have in Congress gives to the people a huge safety valve, a reassurance to each that, even if his legislative ideas do not prevail, he has his day before the people. A citizen goes to Washington to urge the enactment of certain legislative measures which he believes will be beneficial to himself or to his associates, or to secure some executive or administrative action under law already in force, for similar results. This, an honorable, worthy purpose, because he is a citizen, but nevertheless, it is his own purpose that he wishes served. If he approaches the various avenues for the accomplishment of this purpose without immediate results, he recoils hurt and angry. He may feel offended that he does not get the same quick service that he would were he to go into a store to buy a package of cigarettes. He does not stop to consider that for every citizen who goes to Washington wanting a particular thing there is an equal number of people wanting exactly the opposite thing with reasons that seem to them equally good.

He immediately compares governmental activity to his own business activity, much to the disadvantage of the former, and asks, "Why can't a government be run like a business?" There is every reason why a government can not be run like a business, even though it can be run in a businesslike manner. The purpose of a business is to distribute merchandise or services to its customers at a profit. Should a customer of a business

NONE of us is guiltless. "There ought to be a law passed" is our first thought and it is this desire to achieve Utopia through legislative enactment, to have a legislative panacea for every ill, that causes the introduction of twenty to thirty thousand bills in every session of Congress. Yet this is not a surprising number. The surprising thing is that 100,000,000 bills are not introduced into each session, each one representing the legislative idea of some citizen.

Linoleum print by B. Fore

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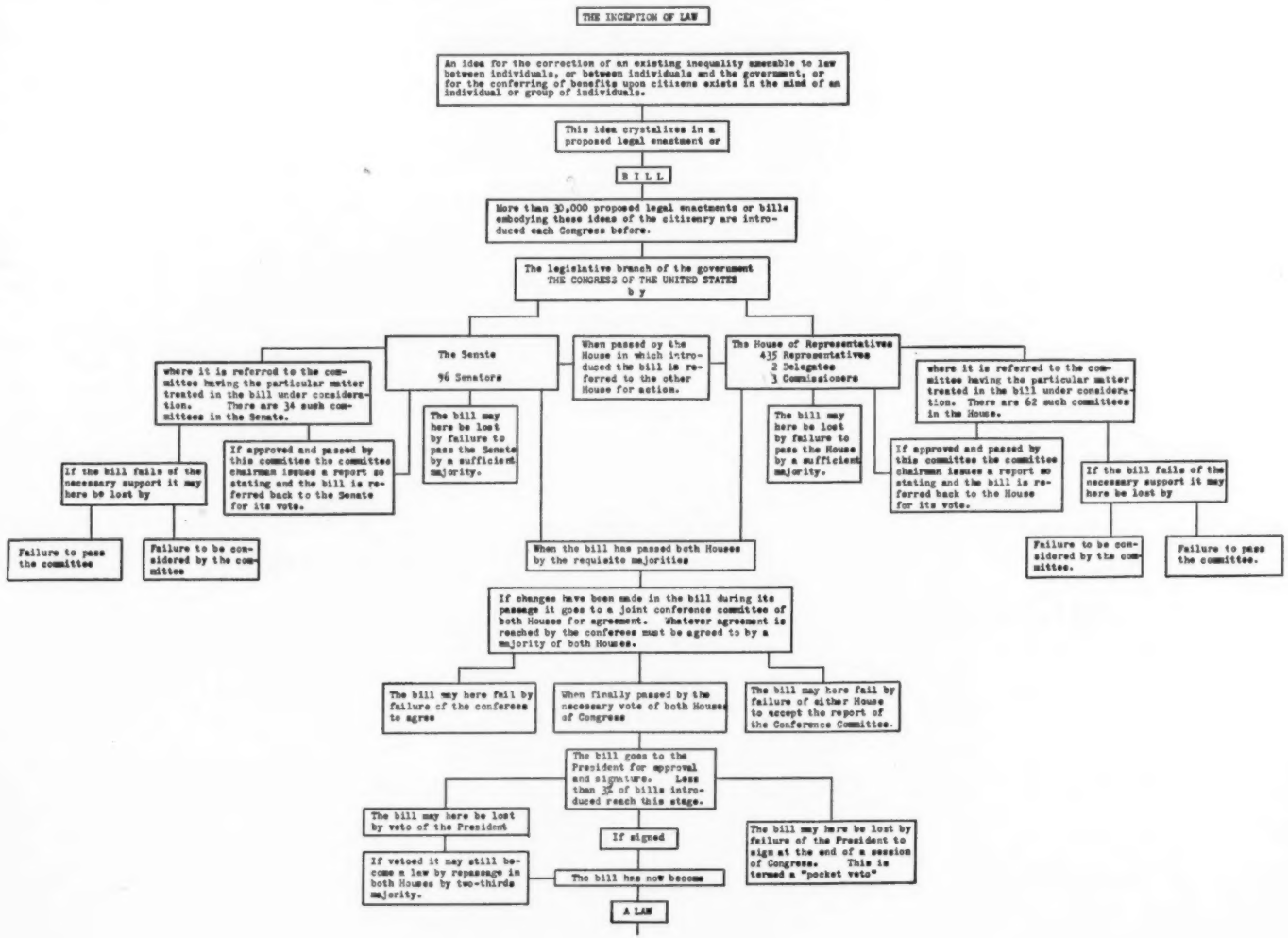
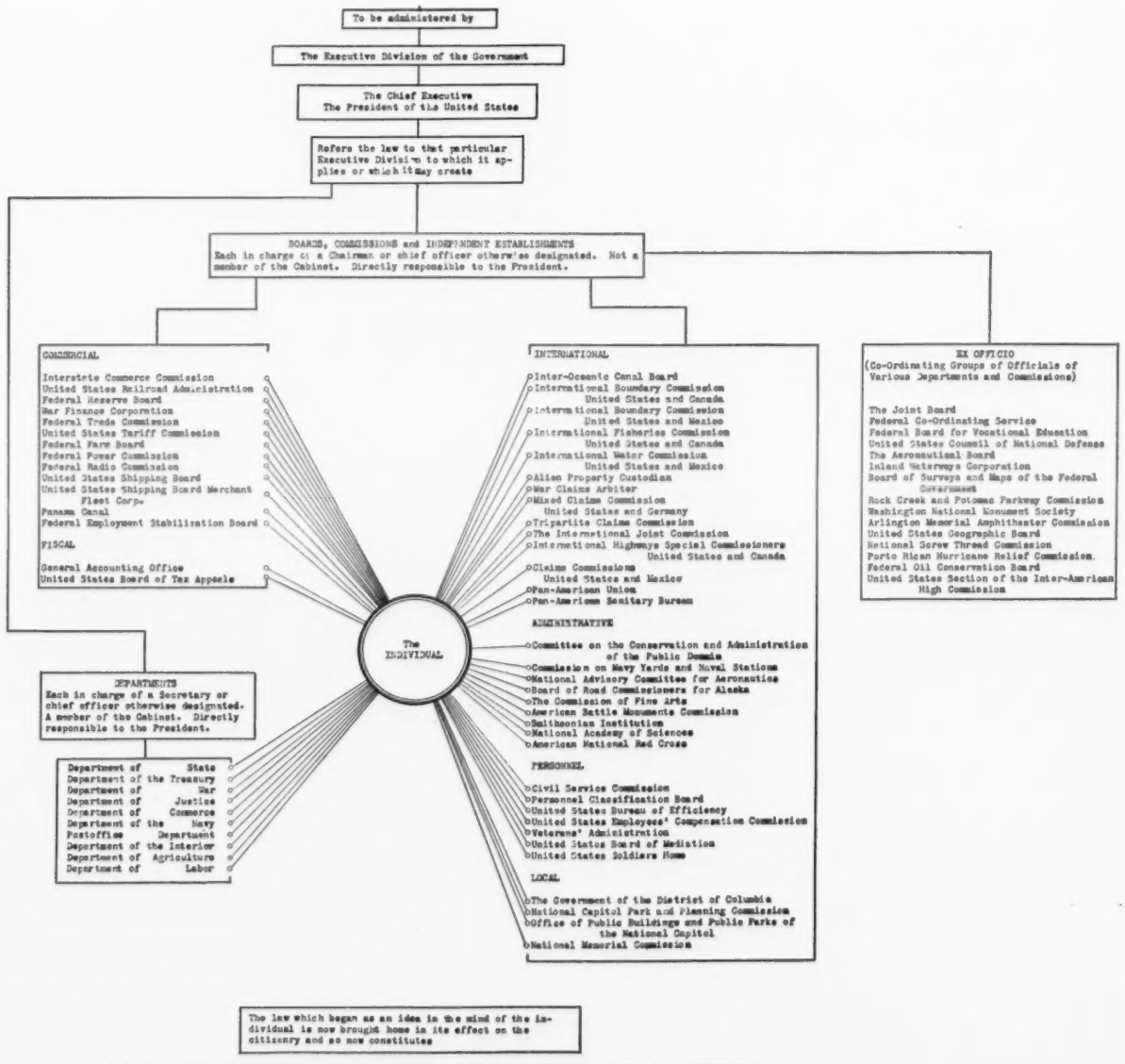
* Member of the Bar, Supreme Court of the United States.

RELATION of the INDIVIDUAL to the FEDERAL GOVERNMENT


THE INCEPTION OF LAW
An idea for the correction of an existing inequality amenable to law between individuals, or between individuals and the government, or for the conferring of benefits upon citizens exists in the mind of an individual or group of individuals.
This idea crystalizes in a proposed legal enactment or
B I L L
More than 30,000 proposed legal enactments or bills embodying these ideas of the citizenry are introduced each Congress before.
The legislative branch of the government THE CONGRESS OF THE UNITED STATES b y
The Senate 96 Senators
When passed by the House in which introduced the bill is referred to the other House for action.
The House of Representatives 435 Representatives 2 Delegates 3 Commissioners
where it is referred to the committee having the particular matter treated in the bill under consideration. There are 34 such committees in the Senate.
The bill may here be lost by failure to pass the Senate by a sufficient majority.
If approved and passed by this committee the committee chairman issues a report so stating and the bill is referred back to the Senate for its vote.
If the bill fails of the necessary support it may here be lost by
Failure to pass the committee
Failure to be considered by the committee
The bill may here be lost by failure to pass the House by a sufficient majority.
where it is referred to the committee having the particular matter treated in the bill under consideration. There are 62 such committees in the House.
If approved and passed by this committee the committee chairman issues a report so stating and the bill is referred back to the House for its vote.
If the bill fails of the necessary support it may here be lost by
Failure to be considered by the committee.
Failure to pass the committee.
When the bill has passed both Houses by the requisite majorities
If changes have been made in the bill during its passage it goes to a joint conference committee of both Houses for agreement. Whatever agreement is reached by the conferees must be agreed to by a majority of both Houses.
The bill may here fail by failure of the conferees to agree
When finally passed by the necessary vote of both Houses of Congress
The bill may here fail by failure of either House to accept the report of the Conference Committee.
The bill goes to the President for approval and signature. Less than 3% of bills introduced reach this stage.
The bill may here be lost by veto of the President
If vetoed it may still become a law by repassage in both Houses by two-thirds majority.
If signed
The bill has now become
A LAW
The bill may here be lost by failure of the President to sign at the end of a session of Congress. This is termed a "pocket veto"


To be administered by
The Executive Division of the Government
The Chief Executive
The President of the United States
Refers the law to that particular Executive Division to which it applies or which it may create
BOARDS, COMMISSIONS and INDEPENDENT ESTABLISHMENTS
Each in charge of a Chairman or chief officer otherwise designated. Not a member of the Cabinet. Directly responsible to the President.
COMMERCIAL
Interstate Commerce Commission
United States Railroad Administration
Federal Reserve Board
War Finance Corporation
Federal Trade Commission
United States Tariff Commission
Federal Farm Board
Federal Power Commission
Federal Radio Commission
United States Shipping Board
United States Shipping Board Merchant Fleet Corp.
Panama Canal
Federal Employment Stabilization Board
FISCAL
General Accounting Office
United States Board of Tax Appeals
INTERNATIONAL
Inter-Oceanic Canal Board
International Boundary Commission United States and Canada
International Boundary Commission United States and Mexico
International Fisheries Commission United States and Canada
International Water Commission United States and Mexico
Alien Property Custodian
War Claims Arbiter
Mixed Claims Commission United States and Germany
Tripartite Claims Commission
The International Joint Commission
International Highways Special Commissioners United States and Canada
Claims Commissions United States and Mexico
Pan-American Union
Pan-American Sanitary Bureau
ADMINISTRATIVE
Committee on the Conservation and Administration of the Public Domain
Commission on Navy Yards and Naval Stations
National Advisory Committee for Aeronautics
Board of Road Commissioners for Alaska
The Commission of Fine Arts
American Battle Monuments Commission
Smithsonian Institution
National Academy of Sciences
American National Red Cross
PERSONNEL
Civil Service Commission
Personnel Classification Board
United States Bureau of Efficiency
United States Employees' Compensation Commission
Veterans' Administration
United States Board of Mediation
United States Soldiers Home
LOCAL
The Government of the District of Columbia
National Capitol Park and Planning Commission
Office of Public Buildings and Public Parks of the National Capitol
National Memorial Commission
EX OFFICIO
(Co-Ordinating Groups of Officials of Various Departments and Commissions)
The Joint Board
Federal Co-Ordinating Service
Federal Board for Vocational Education
United States Council of National Defense
The Aeronautical Board
Inland Waterways Corporation
Board of Surveys and Maps of the Federal Government
Rock Creek and Potomac Parkway Commission
Washington National Monument Society
Arlington Memorial Amphitheater Commission
United States Geographic Board
National Screw Thread Commission
Porto Rican Hurricane Relief Commission.
Federal Oil Conservation Board
United States Section of the Inter-American High Commission
The INDIVIDUAL
DEPARTMENTS
Each in charge of a Secretary or chief officer otherwise designated. A member of the Cabinet. Directly responsible to the President.
Department of State
Department of the Treasury
Department of War
Department of Justice
Department of Commerce
Department of the Navy
Postoffice Department
Department of the Interior
Department of Agriculture
Department of Labor
The law which began as an idea in the mind of the individual is now brought home in its effect on the citizenry and as now constituted

The RELATION of the FEDERAL GOVERNMENT to the INDIVIDUAL

have a grievance against a business for its method of operation he has recourse at law.

The building-up of a surplus in a business is a desirable thing. The proper function of the government is the distribution of benefits to its citizens without a profit. Should a citizen have a grievance against his government he has no redress at law except as the government sees fit to recognize it, and the building up of a growing surplus in the treasury of a government through taxation is a dangerous thing. Because of this fundamental difference we have the checks and balances which make our government supportable. It is these essential checks and balances which are so irritating to the business man. If this same man were to call on a fellow business man with a business proposal he would have the incentive of mutual profit to offer. If his proposal is accepted, they both can congratulate themselves on a mutual profit. But if this proposal is rejected he does not accuse his fellow business man of being inefficient or a scoundrel. However, should he wish to advance a proposal for legislative or executive action by the government, which is to his advantage, he has no proper incentive of return profit to offer the government and he runs against these checks and balances, designed to prevent the achievement of solely selfish purpose, which he does not understand. He runs against those further efforts of an equal number of people who want exactly the opposite thing. Therefore, these necessary and consequent delays, if he meets them unthinkingly, will send him home full of bitter resentment against this unjustified but popular idea of governmental inefficiency which is after all, in the main, but those checks and balances so wisely provided by the founders of our government.

The enactment of a bill into law is a long process. Ninety-six Senators, four hundred and thirty-five Representatives, two Delegates and three Commissioners sit in Congress. The two Delegates and three Commissioners have no vote but they sit in during the discussion of a bill and express their opinions. Bills introduced in both houses of Congress are of the two types: Public and Private. Public bills are those which become part of the code of laws of the United States or which provide for the raising of revenue or disbursing of expenditures. The Private bills are for the conduct of that part of the necessary business of the government, such as the relief of individual citizens, and the awarding of claims and the like.

The majority of legislative proposals may be first introduced in either the Senate or the House of Representatives. All bills for the raising of revenue must originate in the House. This, of course, includes all tariff bills. The Senate alone authorizes presidential appointments, ratifies treaties, etc. The controlling procedure is based on definite provisions in the Constitution of the United States.

Because of the large number of members, there are several times as many bills introduced in the House as in the Senate. The first day of the present session of Congress, more than 5,000 bills were introduced in the House. In order to facilitate this pressure of business, the Rules Committee of the House

Herbert Wilson Smith
Drawing by Courtney Allen

determines the order in which the bills may be taken up for vote after they have been acted upon by the committees having them in charge. In addition to this, every committee has a Calendar Day in which it may ask that its own bills be taken up regardless of the action of the Rules Committee. A bill which is passed by either house must then go to the other house for consideration in a like manner. Having passed both houses, if any changes have been made it is referred to a joint conference committee composed of members of the Senate and House Committees, appointed by their respective chairmen. The work of this joint committee is restricted. It can not add to or change the bill but must work within the provisions passed by both houses. When an agreement is finally reached, each group of conferees report respectively to the Senate and the House, and the bill is voted upon. If it is passed by both houses, it goes to the President for final approval. Only about three-quarters of the bills approved by the committees reach this stage. In case of presidential veto the bill may still become effective. It must be passed, however, over the Presidential veto by a two-thirds majority of both houses.

The usual assumption is that the President must either sign a bill or veto it. However, a bill may become a law or it may be vetoed without positive action on the part of the President. If, having passed both houses, the bill goes to the President and he fails to take action within ten days, it automatically becomes a law. He must exercise his right of veto within this time if he desires to prevent a bill from becoming a law. However, if at the end of a congressional session, when there are ten or less than ten legislative days remaining, the President fails to take action on a bill, it automatically dies because it has not been approved or vetoed while Congress sits and has no further recourse to the required two-thirds majority vote of both houses. Thus the act fails to become a law, and this constitutes what is known as the "Pocket Veto."

When a bill has become a law and is to be administered, it is referred to that Department, Board or Commission chargeable in the act where it may in turn be referred to other commissions or bureaus to be put into effect. All the various independent establishments, such as the Radio Commission, Inter-State Commerce Commission and so forth, have come into existence and exercise some executive functions but are not represented in the Cabinet. For the most part they are responsible to the President, although some have responsibility to the various departments of the Cabinet.

Thus the bill which started out as a thought from one group of citizens and has been adopted as the will of the majority, has now come back into effect on the individual.

If in criticism each citizen should try to point out a law that is specifically bad or seems to him specifically useless, he will usually refer to some matter that does not affect him personally. The idea that too much effort is given to legislation is wide-spread. The problems of our country are becoming increasing and more complex. We all of us want to solve our own individual economic status by staying where we are and moving every one else around. We try to do this a great deal by legislation. Every citizen, who criticizes governmental activity and especially legislative proposals, will usually be found to be in this position. He will say, "Congress could adjourn and go home for ten years and the country would be better off—of course they should first pass House Bill

Blank or Senate Resolution Dash which is very vital to the industry in which I am interested." This need of every citizen and every industry for a solution of individual problems makes the multiplicity of bills and the difficult problem of Congress. The whole code of law of the United States is not a formidable series of documents. It could be read intelligently by an earnest student in his spare time in one month. This would cover all federal statutes now in effect.

It is apparent to every citizen that his own problems are not growing less or more simple as the years go by. The problems of the self-government of a nation made up of 125,000,000 of such citizens can not grow more simple. With the restraint in purpose of legislative activity exercised by the Constitution of the United States and its interpretation by the United States Supreme Court, the process by which our structure of federal law has been created has been orderly. The structure itself is not unwieldy and the additions that will be made to it in the future will be made to adapt this country to its changing conditions as rapidly as the processes of law can overtake the evolution of the people.

THE TASK OF CONGRESS

(From page 16)

THE INHERITANCE TAX we get — $160,000,000 on paper — from the inheritance tax, but owing to that law which gives to the states 80% of the amount they credit on their state taxes we only get about $40,000,000 from the inheritance tax. Then the question comes up—of borrowing? As I stated to you a moment ago the greatest indebtedness that this country ever had was prior to the great war—an indebtedness under $3,000,000,000. By 1919 it reached its peak and amounted to something over $26,000,000,000. Congress, acting on advice from the Ways and Means Committee set aside a sinking fund which increased from time to time by interest that we got on our obligations and set aside this fund to pay off this indebtedness within a period of years. By reason of surplus, etc., during the next 12 years we reduced this indebtedness from $26,000,000,000 down to approximately $16,000,000,000. Whether it was good or bad to so reduce our debt is not the concern of us today. It however does mean one thing—it means that $10,000,000,000 that we used to owe we do not owe now. If we were to attempt to raise the enormous deficit confronting us by taxation, I do not see how simply by taxation we could avoid not going to retroactive taxes which are never equitable and hardly fair. At a time like this to have the various businesses and taxpayers of the

country confronted with back tax that they had no knowledge of—is something that causes concern and must be viewed with a great deal of consideration. 1933—we have to look ahead—we are faced with another deficit of perhaps $900,000,000. It would not be unfair to place the high taxes on the higher incomes for the 1933 fiscal year as it would be if we placed them at this time.

DURING the last 12 years we have reduced our indebtedness $3,600,000,000—more than our program called for. In other words we are today that much ahead of our program or $3,600,000,000 to the good. If during those 11 years of plenty we could practically reduce our indebtedness at the rate of $1,000,000,000 a year without disturbing business, the question naturally arises when we have $3,600,000,000 in excess of our debt reduction set aside for this rainy day, could we not seriously consider the advisability of short term loans, which I prefer to long ones, to borrow enough of this money so as not to unduly disturb business. I believe in using both methods taxation and loans. After hearing from my colleagues, I feel that I can safely make the assertion that if we do assume control of the House there is not going to be any playing of politics on the hill to embarrass the administration. If the President of the United States sends a suggestion to the Congress which, under the conditions, he is empowered to do, I believe I speak and voice their sentiments that every suggestion will receive the most careful consideration, and I do not believe that any one of his suggestions will be rejected because of the source from which it came. If it appears to me that his plan is better than the plan of mine, I would be willing to tear my plan up and take his in order to relieve my country in its distressing situation. But if on the other hand the plan that he sends does not commend itself to our judgment, I believe from what I gather after hearing my colleagues talk that they would first try to amend and then substitute, but I can say that there will not be piled up in the Congress a great mass of bills which we know will either be rejected or vetoed simply to embarrass the administration. But I want it plainly understood, and I am speaking for my party now when I say, that for over 100 years there have been certain abstract principles which my party has adhered to, and that in some instances it may be our duty to present some of those abstract principles. After we have done that we have done our duty and our responsibility has ended. Then if the bills are rejected at the other end of the Capitol or if they receive a veto at the White House, the responsibility shifts to the extent as to how the general legislation will be favored by the American people. Fortunately it will not be long before there will be a national election and whether or not our acts and our deeds will be endorsed will rest upon their action. It is a great problem that confronts us. It is the problem of raising funds to meet a deficit at a time when so many of our citizens are in the least possible circumstances to pay. But I think I can with the utmost confidence give you gentlemen of this Congress the assurance that in the consideration of everything we do along the line of getting that deficit, which can and must be met, we will proceed with the utmost caution with one great end in view, being the end that while we want to give exact justice to all and yet at the same time raise the money which is needed to meet this deficit, in a manner that will prove least burdensome and least harmful to the business of the country.

I want to thank you again for the privilege and courtesy of being with you. I have given you just a view of the problems which are going to confront a new congress which has to consider the question of revenue to meet a huge deficit when for generations back other congresses have had a surplus awaiting them. This Congress is entering with a deficit staring them in the face of something in the neighborhood of $2,000,000,000. In conclusion I trust that you will have a profitable and delightful stay in Washington and I again thank you for the consideration and the patience with which you have listened to me.

LEGISLATION
in the making

THE WHEELS of the national legislature again are grinding with the first session of the 72nd Congress grappling with domestic and inter-related foreign questions. Over eight thousand bills have been introduced since the session opened on December 7. Representative John Nance Garner, of Texas, is presiding over the House as Speaker and Democratic members have replaced the Republicans in control of the committees of that body, while the Republicans are in the saddle in the Senate by a close margin. The House Mines and Mining Committee is headed this year by Representative Smith, of West Virginia, while Senator Patterson, of Missouri, is chairman of the Senate Mines Committee in place of Senator Oddie who was transferred to another chairmanship, although the Nevada Senator retains a place on the committee.

The silver question made its way on the floor of the Senate early in the session when discussion was provoked by introduction of bills for payment of foreign debts to the United States in silver at current market prices by Senators Smoot, Republican, Utah, and Dill, Democrat, Washington, the latter coupling it with a suggestion for the creation of a monetary conference committee of nine members, three each to be appointed by the President, the Senate and House, to invite other governments to agree upon silver as a monetary basis in world exchange. In explaining his bill, Senator Smoot said he hoped England and France would agree upon a silver conference, and that the silver payments would prevent the dumping of silver on the world markets and aid the general silver situation. Question as to the feasibility of the plan and what the government would do with the silver was raised by Senators McKellar, Democrat, Tennessee; Walsh, Democrat, Montana, and Reed, Republican, Pennsylvania. Senator King, Democrat, Utah, said the Senate should compel rather than request the President to call a silver conference as he had failed to call the one proposed by the Senate last session. Statement was made by Senator Pittman, Democrat, Nevada, that silver could be restored to a normal price of 60 or 65 cents per ounce through action of governments in raising its standard of value. He said an international silver conference could bring this about by the governments agreeing to the following proposals: maintenance of silver reserves; establishment of a standard of issue and fineness for fractional silver coins to facilitate their exchange; fixing an exchange value for silver money in settling trade balances with silver standard countries; and declaration of an embargo against imports of silver from countries not participating in the agreement. Senator Fletcher, Democrat, Florida, suggested that the United States increase the use of silver as money without an international agreement and without disturbing the gold standard. Senator Shipstead, Farmer Labor, Minnesota, emphasized the importance of stabilizing the value of silver, which he declared is no more of a commodity than is gold.

A congressional investigation of the silver situation was proposed by the new Chairman of the House Committee on Coinage, Weights and Measures, Representative Somers, Democrat, New York. He proposes that this committee shall inquire into the cause and effect of the depressed value of silver, the monetary policies of the United States and foreign countries and their relation to its value, and the advisability of an international conference to consider methods by which by international cooperation the value of silver can be stabilized.

CONGRESSIONAL HIGHLIGHTS ON MINING

PAYMENT of foreign debts to the United States in silver.

CONGRESSIONAL investigation to stabilize the value of silver.

CONCERTED drives underway for tariffs on copper and oil.

MINES AND MINING Committees headed by Senator Patterson, of Missouri, and Representative Smith, of West Virginia.

INCREASE in corporation, income and surtax rates involved in plan to balance the government budget.

MINING agencies of government suffer appropriation cuts.

MODIFICATION of the anti-trust law in the interest of natural resource producers to be considered.

EXCLUSION of Russian manganese, coal and oil proposed.

SUSPENSION of annual assessment work on mining claims suggested.

GOVERNMENT control of coal mines, oil wells and other property planned.

Tax Boost

INCREASED TAXES are slated for consideration by the House Ways and Means Committee early in January, in order to overcome a two billion dollar government deficit. Such tax advances, mainly in the surtax and corporation rates, along the lines of the 1924 revenue law, have been recommended by the President and the Secretary of the Treasury. It has been proposed that the corporation tax rate be advanced from 12 to 12½ percent and that surtax rates as high as 40 percent on incomes over $500,000 be imposed. Attempts to reduce government expenses will be made. For the year beginning July 1, 1932, the President has transmitted federal appropriation requests to Congress totaling $3,942,754,614, which are $52,271,921 less than those for the current year. For the Bureau of Mines $2,064,530 was rec-

ommended, a decrease of $214,235; Geological Survey $2,904,000, a cut of $237,740; Bureau of Standards $2,630,255, a reduction of $244,315; and the Mint Service $1,508,980, a decline of $222,940.

Anti-Trust Revision

CONSIDERATION of anti-trust legislation is possible. Reference was made to the question by the President when he stated that there was a "continued demoralization in the bituminous, oil and lumber industries" and recommended a congressional inquiry into the economic action of the anti-trust laws and procedure thereunder, although he opposed their repeal on the ground that it "would lead to price fixing, monopoly and destruction of healthy competition." The President said "particular attention should be given to the industries founded upon the natural resources, especially where destructive competition produces great waste and brings great hardships upon operators, employes and the public." Bills proposing such an inquiry have been introduced by Senators McKellar and King, the latter stating there might be a slight modification of the laws for the benefit of the coal and oil industries. Chairman Sumners, Democrat, Texas, head of the House Judiciary Committee, indicated that body might inquire into the situation. Representative Patterson, Democrat, Alabama, introduced a resolution for more thorough prosecution of violations of the laws by the Department of Justice.

Tariff On Copper and Oil

ACTIVE CAMPAIGNS are under way to impose tariff duties on copper and oil on which the Tariff Commission has reported as to the domestic and foreign production costs during the last three years under congressional resolutions, which show lower costs in foreign lands. Representative Evans, Democrat, Montana, introduced a bill for a duty of 4 cents per pound and Representative James, Republican, Michigan, presented a measure for a 6-cent duty on copper. Five bills for duties of $1 per barrel on crude oil and 50 percent ad valorem on refined products have been introduced by Senator Shortridge and Representative Crail, Republicans, California; Hastings and Disney, Democrats, and Garber, Republican, Oklahoma. Representative Crail presented a bill to embargo oil imports and Representative Swing, Republican, California, proposed a limitation on imports. An international conference to consider the tariff and its effects on the trade of nations was proposed by Representative McClintic, Democrat, Oklahoma. Exclusion of imports of manganese, coal, oil and other products was proposed in bills by Senator Oddie, and Representative Williamson, Republican, South Dakota. On the ground that the circumstances did not warrant the inquiry, Senator King had the Senate rescind its action of last session in calling on the Tariff Commission for a report on the production cost differences on lead in the United States and foreign countries during the last three years.

Representative Englebright, Republican, California, has proposed a tax exemption on income from the mining of gold, and measures to relieve prospectors of the annual assessment work on their mining claims have been proposed by Senator Smoot, and Bratton, Democrat, New Mexico, and Representative Evans. Senator King presented a measure for the transfer of the public lands and their resources to the States.

Mines Bureau Transfer

TRANSFER of the Bureau of Mines from the Department of Commerce to the Interior Department, and location of the bureau, together with the Geological Survey and General Land Office, at Salt Lake City, Utah, has been proposed by Senator King, who also presented measures to establish a mine research station at the same city and to restore oil and gas prospecting permits which had been revoked by the administration's conservation order in 1929. Senator Cutting, Republican, New Mexico, also proposed revival of these permits, by presenting a bill for their consideration on their merits and not on the basis of a general conservation policy.

Amendment of the mining laws respecting the procedure for obtaining patents to mining claims was proposed by Senator King, and Representative Eaton, Republican, Colorado, presented a measure to per- (*Continued on page* 36)

The *necessity* for mechanizing coal mining

By G. B. Southward

THE coal mining industry has reached a point in its development which marks the beginning of a new era and the passing of the old order. We have seen that for several years coal mining has been undergoing some radical changes and all signs indicate that these will be far more sweeping in the future than they have been in the past. Because of the fact that mechanized loading has started during this period a good many people believe that this is the only change which is taking place and those who desire to continue the old ways are opposing mechanization as being the cause for the changes which have been brought about so far. As a matter of fact this belief is wrong and the true situation is that mechanization is the result of these changing conditions and not the cause. Furthermore it is simply one of the results.

The reasons for the changes are fundamental. The coal industry has grown up in the past through the action of a number of factors which have had a decided influence on the methods of operation but were not a part of the operation itself. For many years coal mines have depended for their profits on periodic abnormal markets caused by a cessation of activity in competing districts or in competing mines of their own district. These were caused by car shortages and labor troubles. The necessity for making profits during these periods naturally required that a mine should be organized, manned and equipped to produce a much greater tonnage than the normal market demanded.

These peak periods have lost their former importance. Car shortages are a thing of the past and long time idle periods in certain fields due to labor troubles will probably not be as extensive or have the wide influence that they once had. The absence of these unusual demands will require individual mines to design their capacity to supply a normal rather than an abnormal production and to regulate their costs so as to operate at a profit under average demand. Their success or their failure will be governed directly by their ability to do this.

Another item on which many companies depended entirely for their profits was in the operation of the company stores. This day is passing—automobiles and good roads are eliminating compulsory trading at the coal commissary and the store prices must now be made to compete with independent merchants in nearby towns.

THE above instances—typical of the "good old days" had one common characteristic—they brought about a condition whereby a company did not plan or expect to make its profits in its regular operations of coal mining but rather through having some advantage to which it was not entitled and which was never expected to be more than temporary. The influence of these three factors on coal mining in the past was very marked. They were all economically unsound and their elimination is now putting coal mining on a basis where profits have to be made in the mining operation itself and a mine must stand or fall on its ability to compete legitimately with other mines and other districts.

Another marked change now taking place is the closer interest between the production of coal with its distribution and use. In the past the mine operator took the position that the coal requirement of the country was determined by the demands of industry and that there was nothing to do that would increase or decrease that demand. This would have been very well if coal's competitors—oil and gas—had viewed the matter in the same light. Unfortunately for coal they regarded the fuel business as belonging to whoever could get it and acting on that belief they have profited accordingly.

COAL mining in the past has been highly individualistic and cooperation between companies was not looked upon with favor. This attitude is disappearing to some degree among the coal mines as a whole and among the modern mines, using new methods and developing new practices, this has entirely disappeared. The reason is of course obvious. Companies who are developing new methods realize that there are many questions to be answered and that the exchange of ideas which is brought about through mutual contacts is very valuable. In this respect particularly, the old order is passing and a spirit of cooperation is being developed which has never before existed in the industry.

THE movement now underway to completely mechanize coal mining has caused a great deal of controversy and the opponents of complete mechanization seem to lose sight of one essential fact. This is that coal mining is and has been for some time partially mechanized and the only new thing about the present movement is the application of machines to the loading. It would seem that the opponents of mechanization are therefore opposed only to the use of machines for loading as these same men would not in any case consider going back to pick mining, hand tramming mine cars and carrying coal up the shafts in baskets. So in discussing and form-

ing our opinions on coal mine mechanization it is well to be consistent.

THAT the use of power in mining is not recent is shown by the following figures. In 1919 the bituminous coal mines were using power equipment with a total rating of 2,155,412 hp. and was estimated to consume approximately 1,750,000,000 kwh. annually. In 1929 the horsepower rating of the machines used at the mines had increased to 3,124,187 hp. and bituminous coal mining consumed 2,509,890,000 kwh. This shows an increase of approximately 50 percent in the power during this 10-year period.

In 1930 it was estimated that the operations underground were mechanized to the following extent. The figures for the cutting and loading and main haulage are based on fairly accurate surveys; the others are estimates.

Cutting	75%
Drilling	25%
Gathering Haulage	33%
Main Line Haulage	85%
Loading	10%

This shows that coal mining as a whole is now about 50% mechanized and it will be evident that the increased use of power made during the last decade was not due to use of machines in loading but to an increase in the adaptation of power to the operations which have always been mechanized within our memory. Some confusion has resulted from the fact that the term "mechanization" has been misapplied.

THE practicability of complete mechanization has been thoroughly demonstrated with different types of equipment which are best suited to the varying conditions which are encountered. One of the arguments which is used against mechanization is the difficulty of finding employment for the men who would be released. This phase of the question has been considerably over-exaggerated by men, representing both labor and coal companies, who are opposed to any change from the existing order of things. This statement is not meant to deny that at some mines and in some districts it would be very unwise and inhumane to mechanize and throw men out of work at the present time, but in order to get a correct view of how mechanized loading has caused unemployment it is well to consider the following figures.

The normal bituminous coal production for the past few years has been approximately 500,000,000 tons annually. During this time oil and gas have brought about a serious reduction in the use of coal. Estimates from various sources show the tonnage which coal has lost to its two competitors amount to as much as 160,000,000 tons annually so that we are probably conservative in assuming this to be 100,000,000 tons per year. In the year 1931—due to general business conditions — coal production showed an additional loss of 100,000,000 tons.

In order to see what this tonnage loss has caused in unemployment in the coal industry we can reduce these figures to a man day basis. Assume an average production of 6 tons per day per man employed for all mining and assume further a working year of 250 days. On this basis the 100,000,000 tons of coal lost annually through oil and gas has meant the release of 70,000 men from the coal mines. The 100,000,000 annual tonnage loss due to the general business depression has made the further decrease of 70,000 men. The total from these two sources therefore means a loss of work for 140,000 men in coal mining. None of this loss is due to the use of machines for loading.

IN 1930 there were 46,000,000 tons of bituminous coal mined with mechanized loading. Loading machines produced 20,000,000 tons and other types of equipment 26,000,000. To calculate the number of men displaced it is necessary to consider each type of machine separately.

A hand loader does his own drilling, shooting, loading, track, and timbering and can produce 10 tons per day. A mechanical loading crew requires seven men for these equivalent operations and will produce about 300 tons or say an average of 45 tons per man per day. The actual average for all machines is less than this so that the 20,000,000 tons produced with mechanical loaders employed at least 2,000 men as against 8,000 men which would have been needed with hand loading. This means not more than 6,000 men displaced by loading machines.

The other types of loading equipment—conveyors and pit car loaders—use hand shoveling and a loader will average say 25 tons per shift. The 26,000,000 tons produced with these machines in 1930 would have required 10,000 hand loaders with mine cars as compared to an estimate of 4,000 probably used. This means a possible reduction of 6,000 men due to conveyors and scrapers.

If we combine the estimates for all types of loading equipment we find that 12,000 men may have been displaced with underground machines. Probably 10,000 men is closer to the actual figure. Combining this loss with the loss of men due to losses from other causes we can show the following comparison:

Loss of work due to replacements of 100,000,000 tons of coal by oil and natural gas ..... 70,000 men
Loss of work due to 100,000,000-ton annual reduction due to business depression in 1931 ..... 70,000 men
Loss of work due to mechanized loading ..... 10,000 men
Total—150,000 men of which 10,000 or 7% of the unemployment is due to mechanized loading.

THE above figures are of course merely estimates but serve to bring out the point that the installation of mechanized loading is responsible for a very small proportion of our total unemployment in coal mining. The big majority of this loss is due to machines it is true but these are machines used in other lines of work. Machines used for drilling oil wells, for laying pipe lines, for transporting oil and gas through pipe lines are the real menace to the coal industry. Machines used underground for mining are the only means by which this outside competition can be fought and mechanization instead of being opposed should be welcomed by coal operators as their best weapon for regaining markets which have been lost.

COAL MINING is now and has been unprofitable for everyone concerned in its production. It is being borne in upon the minds of the individual companies that this condition is going to continue until radical changes from our past procedures are made, and we get in step to meet conditions as they are and not as they were. Men are giving up the idea that some circumstance or condition outside of the industry will bring back "the good old days." The change from loss to profit must be made by the coal mining industry itself and an improvement in the operating methods must follow as a part of this change. Obsolete hand methods can not continue to hold a place in our industrial scheme of things where the use of machinery is predominating in the production of everything that we use.

AIR SEPARATION
revolutionized the Felspar Industry

By B. C. Burgess*

THE PASSING of Rubert M. Gay should not go by without a few words of appreciation from the industries to which he so largely contributed through his development of the air separation principle.

The Gayco Separator

OF THE MANY industries benefited by the introduction of air separation to their grinding process, none was probably so completely revolutionized as the feldspar industry, which, through the adoption of the Gayco centrifugal separator, made possible the abandonment of batch grinding in favor of continuous grinding.

Air separators had been on the market for several years prior to the time Mr. Gay perfected his machine but none of these separators provided positive centrifuging of the particles such as is accomplished in the Gayco separator by the horizontal feed table and superimposed fans. In the 15 years or more during which the Gayco has been standard equipment for the classification of feldspar products as to fineness, several competitive machines have vied for the business. Some success has recently been attained, but largely to the extent that they have copied the centrifugal feature of the original Gayco. Mr. Gay also brought out several later models of his machine, one with multiple fan blades, permitting

* Manager, Tennessee Mineral Products Corp.

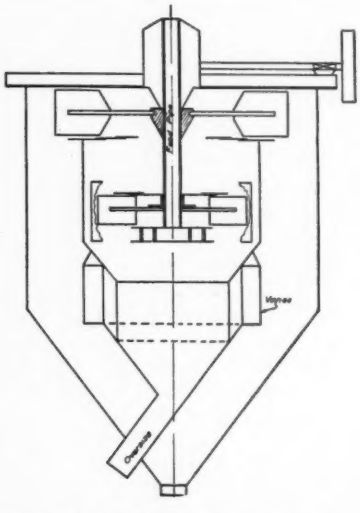


Figure 1. Vertical Section of Gayco Separator

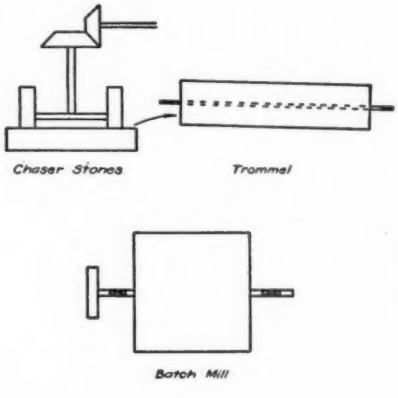


Figure 2. Typical Feldspar Grinding Plant Prior to 1916

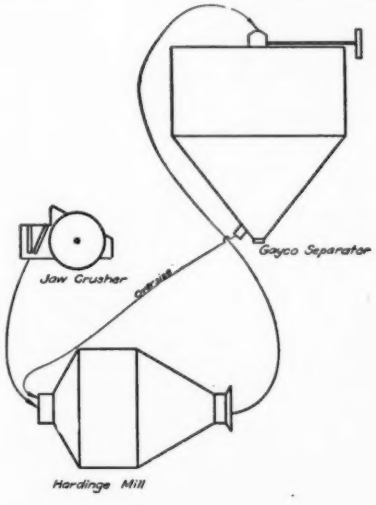


Figure 2A. First Feldspar Grinding Plant Using Gayco-Hardinge Continuous Grinding System

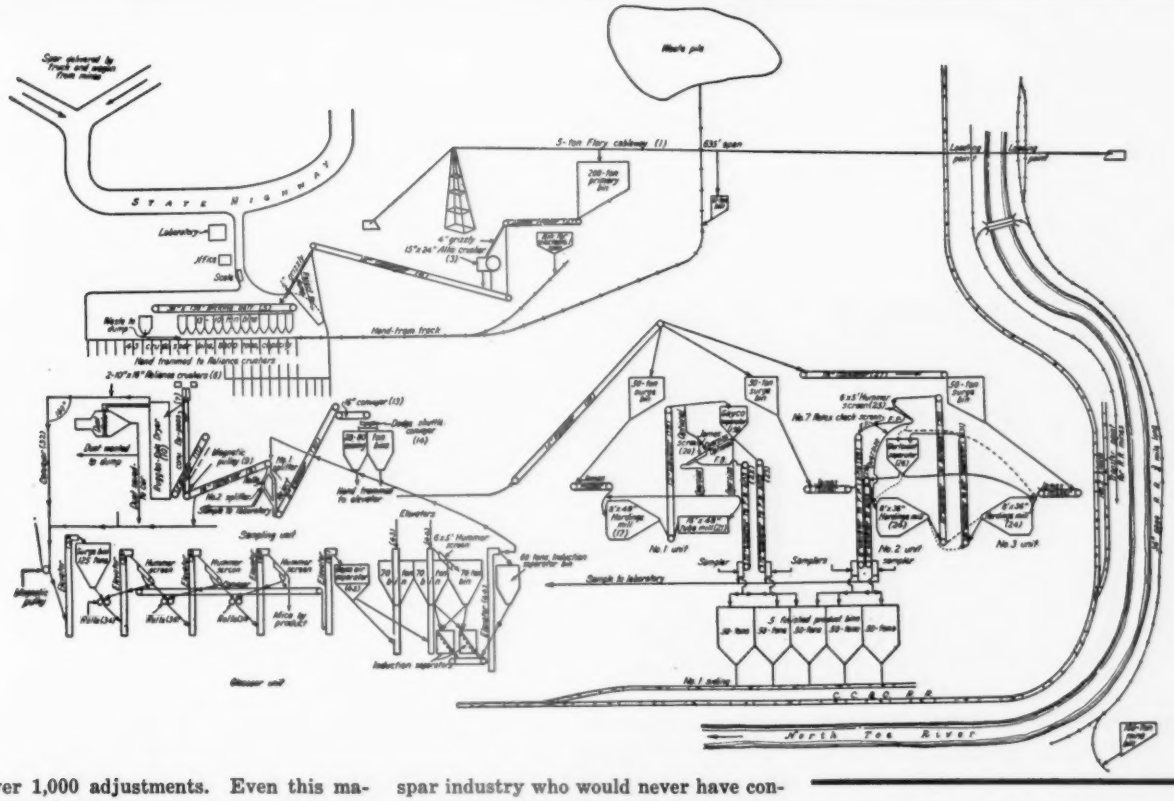


Figure 3. Graphical Flow Sheet of Minpro Plant

over 1,000 adjustments. Even this machine failed to attract any following among feldspar producers.

The first great step in advance in the process of producing pulverized feldspar was inaugurated with the installation of a Gayco centrifugal air separator in closed circuit with a Hardinge conical mill.

Continuous Grinding

THE ADAPTATION of continuous grinding attracted men with engineering ability and financial resources to the feldspar industry who would never have considered devoting their attention to it as long as it was confined to batch milling.

The continuous grinding process more than doubled the production per unit in the industry. In addition, it opened up such an avenue for profit at the prices being paid for the batch mill product, that during the next 10 years new plants were built in all the producing districts. By 1926 there was more than four times the feldspar grinding capacity in the United States that there had been prior to the war. Fortunately, there had also been a considerable increase in consumption in the ceramic industry during this period, which was augmented by a new outlet for feldspar in the glass container industry. But with this increase in consumption the total sales of feldspar in 1926 amounted to less than one-half of the capacity of grinding plants to produce this material.

Figure 4. Sources of crude feldspar in the United States. Open circles proportioned to 1927 production. Solid circles proportioned to 1911 production.

Chemical Control

THE NEXT development in the industry was the natural outcome of these new conditions, i. e., the competitive situation resulting from over development, the problem to maintain uniformity of shipments as to analysis and grinding which the continuous grinding process had brought to light, and the new "Man Power," men of metallurgical and engineering experience who had come into the industry subsequent to the initiation of continuous grinding. The result was "Chemical Control" by means of which feldspar production was taken out of the

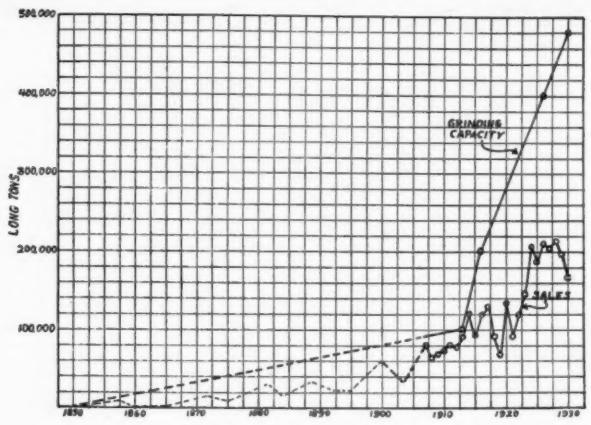


Figure 5. Comparison of grinding capacity with sales of ground feldspar in the United States

rock quarrying class and became a standardized mineral product.

The actual standardization of feldspar became effective for new production September, 1930, under Commercial Standard CS23-30. It was the direct outcome of the chemical control methods, developed by the Tennessee Mineral Products Corporation between 1923 and 1926. The Minpro plant of this company, constructed at Spruce Pine, N. C., in 1926, being the first plant in the industry designed for complete control of the uniformity of its products both as to chemical analysis and fineness of grinding.

Progress Illustrated

FIGURES accompanying this article show graphically the extent to which air separation revolutionized the feldspar industry. Figure 2 is the typical feldspar grinding plant in use from the time feldspar was first ground in the United States, probably about 1850 up until the World War period. About the only difference in the batch mill plant was the motive power, the first chaser stones being dragged around by horsepower, then water power, steam power, and finally electric power was used.

A comparison of Figure 2a, representing the first feldspar grinding plant built for continuous grinding with Figure 3, a modern feldspar plant, shows the tremendous expansion which took place in less than 15 years after the introduction of the Gayco separator.

The map (Figure 4) shows the feldspar producing areas of the United States. Production of the different sections is shown by diameter of circles proportional to the tonnage produced. Figure 5 shows the relation of capacity to sales.

Figure 3 is from Department of Commerce Information Circular No. 6488, "Methods and Costs of Milling Feldspar at the Minpro Plant, Tennessee Mineral Products Corporation, Spruce Pine, N. C." This circular gives a detailed description of the equipment processes and costs of the largest plant in the industry.

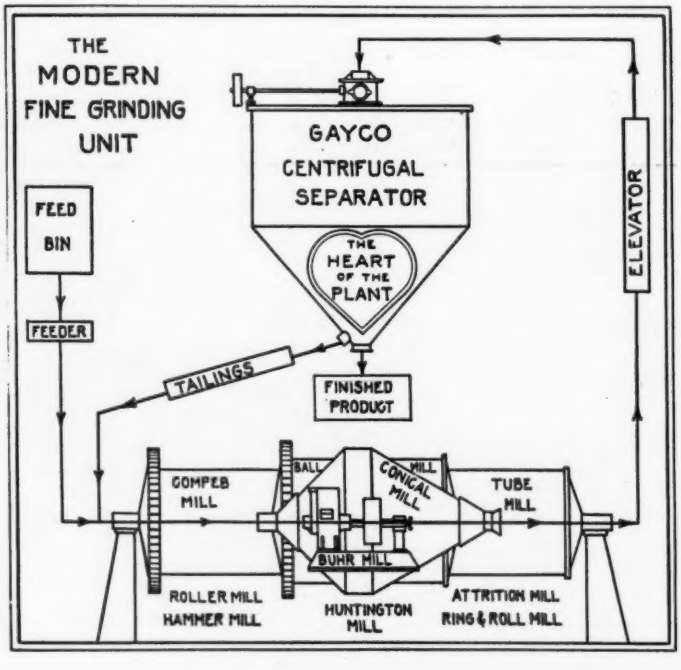
Granular Classpar

ONE UNIT of the Minpro plant, although not a direct development of air separation, is undoubtedly a contribution by the technical men, attracted to feldspar milling since the advent of air separation and continuous grinding.

This new unit produces a product by a continuous process but one designed to make a minimum of fine particles compared to the ordinary methods in which an excess of fines are produced. The unit consists of four sets of rolls in closed circuit with double and triple deck vibrating screens arranged for stage crushing.

The product of this unit is passed over a magnetic separator to remove the iron abraided in (*Continued on page* 36)

Below, The Gayco Centrigual Air Separator
Right, Typical Plant Layout



The *Educative Process* in Accident Prevention Work

By William Conibear*

MAN COMES INTO the world a helpless, dependent creature, with but few of the functions of complete development present. In the beginning, he assimilates experiences with reference to the primitive needs of the body, and as development continues, the primitive needs come to be overshadowed by acquired needs. Having at his disposal his own experiences and also those of his contemporaries and ancestors, it is unnecessary for him to repeat, step by step, the life of his predecessors. Through the assimilation of experience and under the influence of family, school and society he is subjected to an educative process by which he acquires his greatest and most potent characteristic—the possession of race experience. This is knowledge. In a sense, education may be defined as "the process by means of which the individual acquires experiences that will function in rendering more efficient his future action."

In the educative process, to which man must yield in order to complete his development, there are many forces at work. They are usually grouped into two classes, namely: (1) Those forces which are involved in formal or theoretical education; and (2), those which are involved in informal or practical education. The first group embodies those influences the control of which is assumed by the individual himself, or by some agency such as the home, the school, or the church. The second group covers the experience gained by an individual doing something personally, or by seeing others do it. In modern civilization these various forces of education have reached a stage of very elaborate specification and organization, and are being directed to develop man into a socially efficient individual.

Men and how to deal with them so that they will avoid accidental injury and death while in the course of employment is said to be largely an educational problem. But is there need that both employe and employer alike yield to an educative process in order to achieve at least a measurably adequate reduction in the wreckage and loss of life that is being sustained, year after year, by the mining industry? Does the employer possess the means and power whereby he is enabled to direct his workers so that they will be more amenable to control, and thus be guided to use their faculties for their own well-being? Each of these questions would, if treated exhaustively, demand entire treatment to itself rather than a few, brief paragraphs, such as are given in this paper. The conclusions here arrived at do no more than answer the question to which they refer, and no attempt is made to elaborate and defend them. The writer aims only to set forth certain factors, which, as the result of many years experience in mine safety, he believes are of vital importance in the construction of effective measures for combatting accidents.

IT IS HARDLY necessary to observe that our industry is undergoing changes which deal with the possibility of improving conditions, and that progress is being made in accident prevention work. But nobody should deny that there are opportunities for much greater improvement. The accident statistics, published annually by the U. S. Bureau of Mines, give us sufficient information to justify no other conclusion. There are many educational agencies insisting that the humanitarian aspect and the financial loss that go with accidents warrant the most complete precautions for their prevention. The attitude of labor towards the present situation was expressed recently by a member of the Department of Labor of the State of New York, in these words: "The record of industrial injuries is a challenge of the employer's ability to conduct industry. The question arises: Will they do a good job or must the state make them do it? As good business men they should change the record, for we all concede that present industrial injuries cost too much to say nothing of the suffering and misery they cause." Is this challenge to industry to pass unheeded?

It is true that workmen can be charged with a relative degree of responsibility for the occurrence of many accidents, but the burden borne by the employer is not lighter when an accident occurs because an employe failed to discharge that duty. The injured worker pays a two-fold penalty—physical pain and partial loss of daily wage, and the employer is obligated by law to pay compensation; and the accident was an event that fixes more indelibly the frequency and severity rates of his records. If an accident is productive of a valuable lesson in safety—as many are—and that lesson in turn is not profitable either to employe or employer, then it becomes a total loss.

IT IS A COMMON SAYING that "Experience is the best teacher," which is intended to convey the meaning that the experiences that issue from practical life will have a more lasting effect and will function more efficiently than the experiences gained in school. The history of mining, however, is a record replete with accidents which go to prove that the education of the miner in safety through the school of experience is unsystematic and uneconomical. It exposes him to the haphazard operations of natural forces and does not see to it that he assimilates and utilizes, whether he will or not, those experiences which he has learned will help him most. It is a very disconcerting fact that whereas many accidents are object lessons in safety, yet the lessons do not invariably influence men with certainty that those precautions by which they secure their safety will take precedence of all others. Workmen feel comfortable by conforming to existing conditions. They resist changes and find arguments against the adoption of new methods. Old ways of acting become occupational habits which play an important role in the occurrence of accidents. And the disadvantage of it is that the men who

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Paper presented at National Safety Congress.

have these habits do not know it, so firmly do they grip and hold. Experience may be the best teacher during the plastic period in the life of an individual but in dealing with men in industry this saying is not nearly so significant as the qualification that is often added: "Experience is the best teacher and also the dearest."

In the formal education of youth, it is the function of school and college to impart the most important knowledge that has been collected from race experience. The selection of the subjects which are to be taught and what it to be taught about them are not determined by any legally controlled body, but by masters of knowledge, men of science, scholars, historians and philosophers. Knowledge and expanding ideas, reproduced in the form of text-books, put the word into the teachers' mouths, and the teachers are compelled to speak it. Youth, under compulsion, confronts this knowledge, assents to it and assimilates it. It is only by submitting to this educational process that there is any possibility of an individual developing into an efficient member of the human race.

JOHN STUART MILL, in his "System of Logic," writes thus: "The state of knowledge at any given time is the limit of the industrial improvement possible at that time, and therefore the progress of industry must follow and depend upon the progress of that knowledge." With this thought in mind, let us apply to my subject the two fundamental principles of pedagogy, to which reference has just been made.

The hazards of mining have been fully within the understanding of mankind from the beginning of the industry, but we are indebted today to the U. S. Bureau of Mines for the possession of as careful and scientific an analysis of the statistical and related facts as is possible to derive from a study of the accidents resulting from those hazards. In rendering this service, the Bureau obtains trustworthy data and employs competent engineers to inspect mining operations. It observes and studies the whole subject of mining casualties, embracing both coal and metal mining of the entire country for periods of sufficient lengths to validate the information which it diffuses. It can not be charged with errors and inaccuracies in the advancing of conclusions and recommendations because of a lack of material. For these reasons its presentations of facts and conclusions may safely be accepted as correct in the determination of methods in pursuing a policy of accident prevention.

THE DATA ON ACCIDENTS and the recommendations for their prevention, published by the Bureau of Mines, the National Safety Council and other educational organizations, are as varied as the circumstances which give rise to accidents. The wealth of information springing forth from these sources serves in the solution of the problems and situations that accidents present, and should form just as legitimate a part of a curriculum in mine safety as the subject of science, mathematics, language and literature form in higher education. The briefest examination of the publications of the Bureau of Mines, since 1911 to the present time, should convince an enlightened operator that in them he possesses a record of professional experience, accompanied with a presentation of facts and an interpretation of principles that can be applied directly to most of his needs. It is of greatest practical importance therefore that management everywhere recognizes in this literature, permanent and accurate record by which fatality and injury rates can be reduced to more reasonable proportions than is at present the case. If it is true, as a writer states, that "Every science, such as physics, botany and sociology is a body of organized knowledge and interrelated judgments gained from thousands of experiences or drawn from general judgments," then the vast number of experiences having reference to definite phases in mine safety and reduced to judgment form, now available to our profession, should be accepted as a "body of knowledge" and combined into a system that may be designated the "science of accident prevention in mining." It should be clear that progress is rendered possible and more rapid by management assimilating and turning to its own use those experiences which authorities have found to be most serviceable. The bulletin on metal-mine accidents, issued annually by the Bureau of Mines, is a record of the repetition of many accidents that occur by identical causes, and the mass of workers have little to do with the determination of the measures that must be enforced for the prevention of the same. Only to the extent that operators are wise in profiting by their own experiences and also by the experiences of others is there any hope that the accident rates of the future will show a consistent and permanent reduction.

THAT THE NEGLIGENCES of workmen or their disregard of carefully prescribed rules intended to insure their safety is responsible for many accidents goes without saying. Such being the case, the opinion prevails that nothing will more effectively tend to lessen accidents than the education of the miners themselves. Here we come to the consideration of a principle in dealing with men that is of fundamental importance in accident prevention work.

In the domain of economic production, the maintenance and progress of industry depend on the industrial obedience of the vast majority of men being subject to the control of a few. The need for the immediate means of subsistence is supplied by capital, which becomes efficient as a productive agent because it enables the men, who own or control it, to make with those who seek it, a bargain that they will work in accordance with the former's directions. The worker's wage is essentially a payment which is made to him on condition that he perform certain tasks in a certain way. Orders are obeyed because the worker knows that unless he yields, at least one way of earning a livelihood will be closed to him. However appearances may seem to the contrary, workmen, as a class, are as much interested in the maintenance of this system of employment as anybody, for their hopes of securing the necessaries and comforts of life depend, as do those of their employers, on progress in the processes of production.

IN THE OPERATION of a mine there is one man who, essentially and permanently, is the repository of power. Regardless of the title he may have, be it president, manager or superintendent, it is expected of him that he shall be exceptionally efficient in the production of the coal or ore, which is being mined. If competition is keen, as it usually is, productive power must increase, wherein the capacities of this executive are brought to a full and detailed effort in the study of the minutest details of the various factors involved in production. He is the dominating factor which leads and directs others to failure or success, according to his talent and energy in these things and also because of the power he possesses by virtue of the position he occupies.

The factors, then, that are of vital importance in the formal education of an individual, and also those that are of equal importance in the domain of economic production, to which brief references have just been made, are the ones that must be recognized by management if a satisfactory solution of the problem of industrial accidents is to be arrived at. It is the candid opinion of the writer that the secret of success can be summed up in this formula: Management must have a comprehensive appreciation of the necessity of accident prevention work. It must possess the capacity to profit by its own experience and also by the experience of others. As success in productivity depends upon the ability with which

labor is directed and the power it possesses to say to labor "we will allow you to work only if you will consent to work in the ways we indicate," so likewise, the promotion of safety depends upon the same ability and power being used, as the dominating forces in dealing with men, in proportion to the exactness, intelligence and efficiency with which they guard themselves from accidental injuries.

PERCHANCE AN EXECUTIVE, who is being charged with this responsibility, may be interested to inquire what is the process by which he is expected to bring about progress. He would be advised that however many and varied be the methods he may employ otherwise, they are less effective in immediate and permanent application than the results which can be produced solely by himself in personally influencing the minds of others and seeing that they are compelled to confront, assent and conform to that knowledge, which experience has taught is of incalculable value. Since the scientific and impartial determination of the causes of accidents and the best methods of accident prevention, which have been carried on in this country the past 20 years, is the best curriculum available for the education of employer and employe alike, it is his responsibility to have this knowledge conveyed to and imposed on every employe under his jurisdiction, with the same zeal and energy that he displays in introducing improved methods of mining and in stimulating men so that production costs shall be reduced. In this work it is of great importance that the terms safety engineer and mechanical safety devices be not confused as synonymous terms. Very often knowledge lags behind the desired attainment simply because the practical part performed by the safety engineer is altogether too limited.

There are a number of important and well-defined groups of accidents in mining that are due to falls of coal or ore and associated rocks, and to haulage and explosives. The fitness of the safety engineer should be gauged to a very large degree according to the value of the service which he renders in the direction of greater safety and security in these operations and also according to the acceptability of this service to the management. The very essence of his position is that he takes all the facts which have a direct or indirect bearing upon the prevention of accidents and uses them to influence the thoughts and actions of the executive and his workmen so that both will think and act more safely than they would unaided. Progress will be retarded when men, who have the advantage of a thorough formal education in mining, accept this position as temporary and remunerative employment only, with the hope and expectation that it represents but a stepping stone that eventually will lead to a position of more importance in the production department. Such men have a complete misunderstanding of the practical significance of safety in industry, for it should be clearly understood by now that safety enters into all the important principles involved in mining, including equipment, methods of operation, selection of supervisory force, and management of labor. Economy in production and safety in operations are inseparable factors in industry. He who is given an opportunity to enter the field of safety engineering will find work that will tax his ability and training to a degree that is worthy of any man's efforts.

THE IMPORTANCE of a full understanding of all the hazards incidental to mining requires no argument, for the penalty of failure to adopt precautions and safeguards in any one particular may be disastrous in the loss of life and property. For instance, we have been given many reports which draw attention to preventable fire hazards, but the lessons of experience that should be applied toward the deliberate purpose of preventing the occurrence of disasters, such as have happened in the past, are sometimes considered of minor importance, or are ignored entirely. In the introduction of Miners Circular 10, printed in 1912 by the Bureau of Mines, there appears this sentence: "The chief purpose of this circular is to call attention to some methods of preventing a fire in a mine and of quickly getting control of one in case it starts"; and under the heading of "General Precautions" in the same report, the first one reads: "Do not smoke underground." In bulletins and circulars of more recent dates the Bureau has reported upon underground fires, which it carefully studied with the specific object of ascertaining the most effective methods of reducing this element of danger which surrounds the miner's life. In recognition of the hazards involved in mine fires and the urgent need of paving the way by which they may be controlled, the American Mining Congress and the National Fire Protective Association, under the procedure of the American Standards Association, published a special report embodying recommended practices for preventive measures and fighting equipment. Unwillingness to give heed to these warnings and recommendations on the part of management is but indifference to a specific danger that some day may result in the loss of many lives and the serious damage of valuable property. An admittance that smoking underground can not be stopped precludes the right and power of management to conduct its business in accordance with the best practices. As a matter of experience, the rule prohibiting smoking underground is simple and easy to enforce; more so than the rule which requires men to wear goggles every time they are engaged at work that is dangerous to the eyes. In some instances obedience to this latter standard may properly depend upon the exercising of good judgment by the worker, but there is no valid reason for a violation of the other standard. Of the wisdom of fire-proofing shafts, pump rooms and fan stations, and the maintenance of ample equipment and trained personnel for fighting fires, there should be no difference of opinion. Common experience everywhere affords demonstrations of the necessity and importance of every reasonable care being taken to provide against foreseeable occurrences of fires, for it is only by taking such action that there is any hope of averting costly calamities in the future.

INFORMATION, even knowledge, an executive may have in abundance, but the application of this knowledge to the problems that confront him is not easy. The fact must ever be kept in mind that notwithstanding the many methods and innovations in vogue for the expressed purpose of educating men in a safety program, there are no substitutes to take the places of competent supervision and rigid discipline. It can not be expected that foremen with limited vision and education will qualify in successfully interpreting and administering this important work. Weak links in the supervisory chain that encircles the working force play a major role in determining the habits which many of its members pursue. Foremen have to exercise many functions of management, and if their ability and training do not fit them for participation in such matters, the responsibility for their administration must be borne by the executive.

It has been said "*that probably the best single statement of intelligence is the ability to adjust oneself quickly and successfully to new and changing conditions.*" Efficiency in safety involves new plans and methods and the breaking down of old habits of thought and action. And, consequently, only those men should be retained in positions of trust and authority, who have the intelligence and exhibit a willingness to look the inevitable in the face and readjust themselves to higher standards. After all, the executive is responsible for the work of his subordinates, and if they can not be trained to be what he knows they should be, then the foundation essential to the structure of industrial safety can not be laid.

COST of Mine Accidents

By E. B. Agee*

THE subject, "The Cost of Mine Accidents," is a direct challenge to coal executives from a dollar and cents standpoint to reduce not only the cost of compensation but also the operating cost per ton of coal produced. The cost of accidents in and around all coal mines is staggering and of vital importance to each and every individual operator. Executives and operating officials are recognizing this fact slowly, but surely as economic depression forces them to examine their own cost sheets more closely than ever before. Necessity is now forcing all coal executives to realize that dollars and cents can be saved by active, conscientious accident prevention work. I shall endeavor to show you that the experience of the Dehue mines of the Youngstown Mines Corporation (a subsidiary of the Youngstown Sheet & Tube Company), located at Dehue, Logan County, West Virginia, proves conclusively that the cost of mine accidents is of greatest importance in its cost relation to every action in and around all coal mines.

The record of achievement accomplished by the employes at this mine in the past three (3) years in accident prevention is reflected in the cost of accidents and the operating cost per ton of coal produced. The officials of Dehue mine of the Youngstown Mines Corporation believe that they have met Mr. Lambie's challenge as shown by the facts and figures compiled from our own experience during the past four (4) years as tabulated below:

We employ approximately 400 men, with an output of 2,500 tons of coal daily. This mine is gaseous, an 80-ft. shaft opening with 4 to 18 in. of draw-slate throughout, in the Eagle seam. The coal averages 5 ft. in thickness.

Thirty-six fatal accidents occurred in this mine from 1917 to 1927, inclusive, or an average of 3.3 yearly. Serious and minor accidents occurred with monotonous regularity.

In four years' time, beginning in 1928, the amount of compensation paid employes was reduced from $28,180 per year in 1928 to $12,044 in 1930 and is $662 for the year 1931 up to and including November 20. The direct cost per ton was reduced from .046 cents per ton in 1928 to .0025 cents per ton in 1931. The indirect cost, using the Heinrich & Hosler formula, as shown by Mr. Lambie, was reduced from $112,700 in 1928, to $2,651 in 1931, the indirect cost per ton being reduced from .186 cent per ton in 1928 to .013 cent per ton in 1931. During 1931, a saving of .043 cent per ton or $11,050 was realized in the direct cost, while a saving of .173 cent per ton or $44,457 was realized in the indirect cost. To my mind, such a cost reduction is of more than major importance to clear-thinking coal executives. It represents the difference between profit and loss to many mines in these strenuous, competitive days.

The number of fatal and lost-time accidents was reduced from two (2) fatal and 162 lost-time accidents in 1928 to no fatal and 57 lost-time accidents in 1930 and only one lost-time accident in 1931, up to and including November 20.

The number of days lost by injured men was reduced from 18,895 days in 1928 to 2,583 days in 1930, and for 10 months in 1931 up to and including November 20, only 297 days have been lost.

The accident frequency rate was reduced from 185.34 in 1928 to 2.77 in 1931 and the accident severity rate was reduced from 21.73 in 1928 to .822 in 1931.

Only one lost-time accident has occurred at this supposedly dangerous mine during the year 1931, it having occurred last January 7. The Dehue mine has now completed 10 month's operation during 1931 without a lost-time accident, at a production capacity of 600,000 tons of coal annually.

Our entire organization is thoroughly sold on accident prevention work from top to bottom, including wives, mothers and children.

In conclusion, I would say that accidents are preventable and a needless economic waste in the mining industry.

We feel that the mine management is entirely responsible, in one way or another, for at least 90 percent of all fatal and lost-time accidents that occur in and around the mines. We also consider that an efficient employe is a safe employe and a safe employe is a cost saving to our company in dollars and cents.

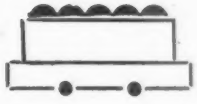
* Superintendent, The Youngstown Mines Corp. Paper presented at National Safety Congress.

COMPARATIVE YEARLY COST PER TON OF COAL MINE ACCIDENTS, THE YOUNGSTOWN MINE CORPORATION, DEHUE MINE

Year	Tons of coal Produced	Amount of Compensation Paid employes Amount	Cost Per ton	Indirect Cost of Accidents Amount	Cost Per ton	Safety Maintenance Cost Amount	Cost Per ton	No. Fatal Accidents	No. Lost-time Accidents	No. days Lost	Accident Rate	Severity Rate
Prior to 1928								36				
1928	606,269.10	$28,180.00	.046	$112,720.00	.186	$2,231.02	.004	2	162	18,895	185.34	21.73
1929	624,154.20	15,449.00	.025	61,796.00	.099	2,791.12	.004	2	150	24,836	173.00	28.64
1930	543,270.30	12,044.98	.022	48,179.92	.089	2,979.78	.005	0	57	2,583	65.43	2.96
1931*	256,977.75	662.86	.0025	2,651.44	.013	2,788.67	.011	0	1	297	2.77	.822

NOTE: Number days lost includes 6,000 days for each fatality.
* First ten months of 1931.

The Relation of Mining Costs to Capacity of Mine Cars



By
F. S. Follansbee*

IN a study of the relation of mine cars to costs, let us first take an individual mine and make an analysis of its costs.

It is a drift mine, room and pillar system, hand loading.

The seam will average about 42 inches and is clean.

The roof is as good or better than the average.

The bottom is fairly hard.

Grades are uniform and in favor of the loads and of drainage.

It is equipped with 2.5 ton solid end, all steel cars and a rotary dump.

On a whole, mining conditions are a little above the average.

There are 56.5% Producers, which includes Cutters and Loaders only.

There are 32.8% Non-Producers inside and 10.7% Non-Producers outside.

Breaking down the costs we have the following:

Fixed Charges are 21.3% of the total cost.

Mining Cost 78.7%.

Fixed Charges Are:

Royalty
Leasehold
Development
Depreciation
Taxes
Insurance
General Office Expense

MINING COST is divided into Labor and Material, which is Labor 82.7% and Material 17.3% of the Mining Cost, or 65.1% and 13.6% respectively, of the Total Cost.

Material includes Compensation Insurance and purchased Power, which amounts to 33.5%, leaving 66.5% of the Material for the cost of supplies or making the cost of supplies 9.1% of the total cost.

Labor includes piece work, day men and salaried men.

Piece Work is largely Loading, Cutting and Yardage. This is 68.4% of the Mining Labor, leaving 31.6% for day and salaried men, or 20.6% of the total cost.

Now let us see what will affect these various items of Cost.

FIXED CHARGES.

Royalty, Leasehold, Development and Depreciation are charged at a fixed amount per ton, leaving Taxes, Insurance and General Office Expense as variables, which are affected by the monthly tonnage. These variables amount to 27.0% of the fixed charges, or 5.7% of the total cost.

If the monthly tonnage is a fixed amount, the local management has no control over these items.

Of the items that make up the Material Cost, Compensation may be affected by the accident record and by reducing the unit cost of day labor.

Power may be affected by concentration, leveling off demand peaks, closeness of sub-stations to load centers, feed wire layout and bonding.

The rest of the Material items depend largely on concentration and daily tonnage.

Of the Labor items, 68.4% is Piece Work, which may only be affected by a change in wage scale.

In the case of the miner, this may be justified and made possible by increasing his productive capacity.

The same applies to the Machine Runner.

Concentration plays a large part toward accomplishing this end.

This leaves 31.6% of the Labor, or 20.6% of the total cost from which any economies may be made by the local management.

Thus for a mine with a fixed monthly tonnage we have a limited range of items that are under control of the local management. These are in percentages of the total cost, Labor 20.6%, Material 9.1%, or a total of 29.7%.

With a mine where production is pushed to the maximum, the 5.7% of variable fixed charges may be added, making 35.4% that is up to the local management.

There are only three possible ways by which the 20.6% of Labor may be affected. These are a reduction in wages, less day men for a given daily tonnage, or an increased daily tonnage for a given number of day men.

A reduction in wages is an unsatisfactory solution and is usually passed on to the customer.

Less day men for a given daily tonnage means more men thrown out of work.

An increased daily tonnage for a given number of day men at a mine with a fixed monthly tonnage means fewer working days. This is probably the most satisfactory of the three and may be accomplished largely by concentration.

One of the greatest contributing factors to concentration is the capacity of the mine car.

This mine worked 18 days, loading 1,843.5 tons per day, or a total for the month of 33,183 tons. 765.6-2.41 ton cars of coal were dumped daily.

12.1 Gathering Motors averaged 63.5 cars of coal per motor per day.

If these cars had averaged 3.00 tons of coal and the gathering motor performance had been the same, the daily production would have been 2,295.2 tons and only 14.4 days (*Continued on page* 44)

* Chief Engineer, Koppers Coal Co., Pittsburgh, Pa. Presented at meeting of West Virginia Coal Mining Institute, Wheeling, W. Va., November 27, 1931.

MARKET TRENDS

THIS DEPARTMENT, appearing for the first time, aims to present each month, not an abstract mass of statistics, but a running commentary on the vicissitudes of the coal and metal markets over the preceding month. Herbert Spencer said "The smallest fact is a window through which the infinite may be seen." With this in mind, we shall hope to open to our readers each month, a clearer view of Market Trends, based upon outstanding occurrences in recent weeks.

Coal

IN COAL, everything has revolved around plans for stabilization. At the opening session of the Governor's Conference in Lexington, Ky., Governor Sampson said: "Help from outside the industry is made necessary by the complications, rivalries and keen competition which exist among coal producers." The Special Committee of Fifteen and their sub-committee meeting in New York operated on the theory that unity of effort would be accomplished through district or regional sales agencies. Unquestionably, unless this or some other plan be definitely adopted and cooperatively attempted in all sincerity, at an early date, we shall see a continuous series of coal company receiverships, or drastic governmental intervention.

Following the operators' meeting, came a plan proposed by John L. Lewis, of the National Mine Workers, renewing an appeal for a Federal Coal Commission.

The New England Freight Association docketed additional freight rate reductions aimed at the motor truck activities, among them being proposed cuts on the New Haven Railroad on anthracite screenings to Holyoke, Mass., from points of origin in Connecticut; on bituminous coal from Providence and Boston to Franklin, Walpole and East Walpole, Mass.; and Providence to Harrisville and Pascoag, R. I.

Anthracite, in resisting the invasions of oil and gas into the domestic field has extended its radio program activities into a full Sunday evening hour.

The National Industrial Traffic League proposed that any increase in freight rates which might be allowed the carriers should be in the nature of a flat surcharge separate and distinct from the established rates, in order to preserve the existing differentials.

The railroads made a counter proposal to the Interstate Commerce Commission in the 15 percent rate case, asking that charges be made in cents-per-net-ton, rather than in dollars-per-car, in order to avoid excessive demands for maximum capacity cars.

Discussions of merchandising methods and cost analyses continue to claim attention in the widespread effort to eliminate duplication of service, and unnecessary yard equipment.

Smoke elimination, domestic stokers, thermostatic equipment and ash removal all afford promising fields of research, and in meeting the competition of oil and gas in areas where anthracite is little used, great activity is seen with gratifying cooperation between coal producers, wholesale and retail coal associations, and engineering research schools.

Agitation is also heard for a tariff on foreign oil in an effort to conserve not only the domestic oil supply but also to help the coal industry.

The Third International Conference on Bituminous Coal produced a hundred scientific papers, and several notable contributions on industrial economics.

The Cincinnati Coal Exchange devoted a session to discussion of standardizing "egg" coal, which through the development of mechanical stokers on one hand, and demand for lump on the other, seems to have fallen in disrepute because of faulty preparation and irregularity of sizes.

Net ton prices of bituminous coal at the mines are listed by the U. S. Bureau of Mines for the entire United States, starting with an average of $2.26 in 1917, reached a high peak of $3.75 in 1920, and have constantly declined to $1.58 in 1931, which latter price is unquestionably below the present average production costs for the entire country.

Railroad fuel prices in 1930 averaged $1.82 per ton for the whole United States; while in 1931 the average has risen to $1.97 exclusive of direct freight charges. Early in December the National Association of Purchasing Agents reported total stocks of anthracite and bituminous coal as thirty-three and a quarter million tons or about forty-one days' supply. This was a half million tons increase over the preceding month notwithstanding consumption increase of one and a half million tons during the same period.

The continued warm weather tended toward sluggish movement in the East which, however, was partially balanced by continued open water in the Great Lakes with consequent movement to Lake ports. Bituminous price levels fell off, and low volatile coal was particularly hard hit. As winter weather reached Denver, western retail yards experienced the first pick-up in months. The past week, lower temperatures in New England and New York stimulated retail deliveries with consequent reduction in stocks. With the exception of Cincinnati and Birmingham, prices became firmer.

Copper

COPPER has loomed large in the news of the past month. It reached a new all-time low level at 6¼c. a pound, and even at that price, offerings remained untaken. Buyers hesitate while the problem of curtailment is discussed, and the disposal of accumulated stocks still worries the industry. Knowing the situation, fabricators and consumers refuse to pay a higher price.

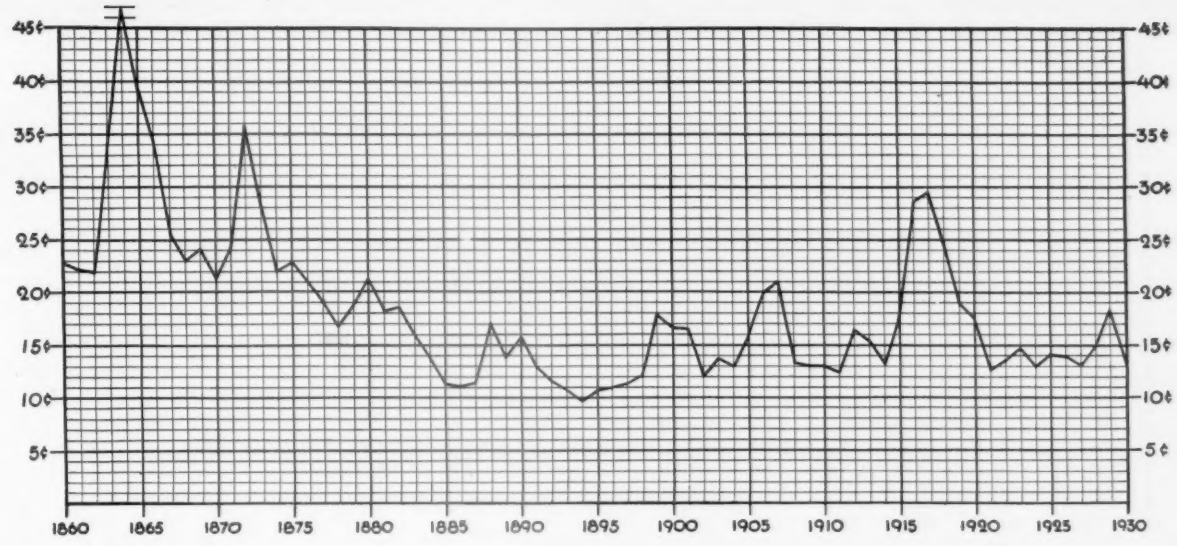
Electrolytic copper for domestic shipment is quoted at 6½c. a pound delivered to March 31; and for European destinations at 7c. c.i.f. Hamburg, Havre or London.

Market writers generally complain that no authoritative statistical figures have been issued by the industry since early October, for the month of September. Exports having declined however during October and November, it is currently assumed that surplus stocks of refined copper have been materially augmented. These are variously estimated at from 500,000 to 525,000 tons exclusive of stocks held by producers, members of the Copper Export Association and in Africa and Europe.

Investors generally are suspicious and many others inclined to a critical attitude toward the copper industry, believe that the withholding over a period of weeks, of production figures and usual data, will only react unfavorably upon the industry.

Of some twenty world producers, the industry may be said to comprise about a dozen principal companies. Like the coal industry, the copper industry is vastly overdeveloped, and a 26% of-capacity-production would maintain a normal market.

As in the oil-coal situation, the strictly domestic copper producers are agitating for a tariff on copper. Companies with international holdings and students of earlier artificial price levels, oppose the idea. Economists maintain



AVERAGE ANNUAL PRICE OF COPPER, 1860 TO 1930

that a superficial study of production costs alone will not reveal the world picture of relative copper production and distribution as it should be known, for fundamental tariff structures.

Early in December the Phelps-Dodge Corporation signified its intention to withdraw from Copper Exporters, Inc. Last week however the price climbed to 7 cents a pound, on news that this company had withdrawn its resignation, pending successful reorganization of the export corporation.

Fluctuations in sterling exchange rates made erratic the foreign quotations on copper. Meanwhile, conferences and inter-company negotiations for output restriction and sales-proportioning, filled the air and the press with vague rumors.

Foreign cables reported the Katanga producers as agreeable to a 40% curtailment of output in an effort at world stabilization of copper, but as unwilling to cut to 26% as discussed by American producers, since the Katanga annual capacity is proven larger by 45,000 tons than was originally estimated.

The average price history of Lake copper in New York, from 1860-1899, and of electrolytic copper from 1900-1930 inclusive, will prove of interest.

Copper consumption in Great Britain, France, Germany and Italy averages from 63% to 65% of the world's total, outside the United States and Canada.

Silver

THE SILVER situation is receiving increasing study and attention. There seems to be little argument about the desirability of effecting actual stabilization of the metal, but no plan as yet has carried sufficient clarity and force to win substantial approval.

A bill by Senator Smoot of Utah to permit foreign governments to pay their debts in silver at the current market price was followed by one introduced by Senator Dill, of Washington, to create a monetary conference committee for an international silver conference. Senator Pittman, of Nevada, outlined a plan for such a conference and said that China, Japan, Australia, Mexico, Canada, and the countries of South America would welcome an opportunity to meet and discuss silver stabilization. He believed that such action would restore silver to 60-65c per ounce.

Regardless of the several theories for the rehabilitation of silver, one outstanding fact may be borne in mind: for many centuries the ratio between silver and gold was approximately 14:1. With the exception of 1928 and 1929 when it was 13:1, the ratio since 1881 has been around 12:1. The American Metal Market in a recent issue says:

"It is not impossible to devise practical means to further stabilization by a certain co-ordination of monetary policies of the central banks regarding their future purchases of silver for coinage uses. * * * Regardless of its result on world price levels, it must be taken into consideration that stabilization will necessarily improve the standard of living of silver using * * * and producing countries."

Silver throughout 1931 to date has fluctuated in New York from 25¾c. to 37¼c. per ounce, recent quotations being 31c. Silver production figures are based on sales, so that apparent low production is partly due to silver held in storage for higher prices.

Lead-Zinc

ZINC sold at the lowest price since 1895, when early in December it moved in small quantities at 3⅛c. per lb. The highest point reached this year was 4c. This metal has gradually dropped in price from 6.7c. in 1926.

While the demand is light, it is reported that the smelters have not been receiving their full tonnage for several weeks, and that they will soon be forced to draw on the mines for additional ore. February deliveries were quoted the past week at 3.2c. Refined stocks and shipments have been held in very close balance, any increase in stocks being of high grade.

Abandonment of the gold standard by Great Britain stimulated her export trade in galvanized sheets, and British producers have agreed that their most profitable field at present, is in the production of zinc oxides.

Users realize that the price of zinc is neither subject to manipulation nor production control, and that the price is solely regulated by supply and demand.

LEAD production in December has lessened. The market has fluctuated around 3.85c. per pound in New York and 3.65c. in St. Louis. Shipments average around 31,000 tons for the month. The foreign market is receiving bullion from the Mt. Isa properties in Australia.

The monthly average world production in 1930 was 152,773 tons, and this year 127,007 tons, or an approximate decrease of 17%.

Early in December several large users withdrew from the market, having

covered their requirements for four weeks. This caused a sudden contraction in demand. Such inquiries as have followed have been for small carload lots. It is conceded that an agreement among the copper producers would probably serve to strengthen the other non-ferrous metals.

Interest has quickened in berryllium and chrome ores and their oxides. The other metals and non-metallics have remained unchanged over a period of weeks.

Price Range of
ANTHRACITE, *per net ton, f.o.b. mines*

Broken	$7.50—$7.50
Egg	7.25— 7.75
Stove	8.00— 8.00
Nut	7.50— 8.00
Pea	5.00— 5.75
No. 1 Buck	3.15— 3.25
No. 2 Rice	1.60— 1.85
No. 3 Barley	.65— 1.40

Price Range of
BITUMINOUS, *per net ton f.o.b. mines*

WESTERN PENNSYLVANIA (*High vol. and gas*)

Lump	$1.50—$2.00
R O M	1.25— 1.50
Stack	.35— 1.10

CENTRAL PENNSYLVANIA (*Low Vol.*)

Pool 1	$1.90—$2.25
Pool 9	1.70— 1.85
Pool 10	1.50— 1.70
Pool 11	1.40— 1.50
Pool 18	1.35— 1.50
Pool 71	1.80— 2.00

WEST VIRGINIA (*High Vol.*)

4" lump	$1.25—$2.00
2" lump	1.25— 1.50
Egg	1.00— 1.50
Nut and Slack	.30— .65
R O M	1.00— 1.25
Slack	.25— .50

WEST VIRGINIA (*Low Vol.*)

Lump	$2.50—$3.25
Stove	2.00— 2.50
R O M	1.60— 2.00
Slack	.50— 1.00

EASTERN KENTUCKY

Block	$1.50—$2.00
2" lump	1.00— 1.25
Egg	1.00— 1.50
Nut	1.00— 1.50
R O M	1.00— 1.50
Slack	.30— .75

WESTERN KENTUCKY

Block	$1.40—$1.75
3" lump	1.15— 1.70
Egg	1.15— 1.70
Nut	.90— 1.25
R O M	.85— 1.15
Slack	.20— .50

OHIO	*Screened*	*R O M*	*Slack*
Pittsburgh No. 8	$1.35—$1.80	$1.25—$1.75	$.65—$1.00
Hocking	1.35— 1.80	1.30— 1.40	.65— 1.00
Pomeroy	1.35— 1.80	1.30— 1.40	.65— 1.00

INDIANA	*Lump*	*Nut*	*R O M*	*Slack*
Fourth Vein	$1.50—$2.50	$1.75—$2.00	$1.60—$2.00	$1.00—$1.40
Fifth Vein	1.50— 2.50	——	1.15— 1.50	.50— 1.00

SOUTHERN ILLINOIS

Lump	$2.60—$2.80
Egg	2.30— 2.45
Stove	2.10— 2.25
Nut	2.00— 2.05
R O M	2.00— 2.15
Slack	1.10— 1.60

CENTRAL ILLINOIS

Lump	$2.00—$2.40
Egg	1.90— 2.05
Nut	1.65— 2.00
R O M	1.80— 1.90
Slack	.70— 1.25

LEGISLATION

(*From page 23*)

fect titles to oil shale claims. Representative Englebright asked for legislation to grant patents to lands containing gold bearing gravels at depth and Representative Douglas, Democrat, Arizona, proposed to authorize patents to lands containing copper, lead, zinc, gold, silver and associated minerals at depth. Patent to lands held under color of title was desired in a bill by Senator Bratton, while Delegate Wickersham, Republican, Alaska, asked that the general mining laws of the United States be applied to placer mining claims in Alaska. To develop the manufacture of radium for medical purposes, a bill was presented by Representative Kelly, Republican, Pennsylvania, appropriating $100,000 for the purchase of ores and the manufacture of radium on an experimental basis by the Bureau of Mines. Purchase by the government at a cost of $12,000,000 of the coal and asphalt deposits in lands of the Choctaw and Chickasaw Indians in Oklahoma, was proposed by Representative Cartwright, Democrat, of that State.

Coal Mine Control

REPRESENTATIVE McSWAIN, Democrat, South Carolina, introduced a resolution, which he says should be permanent legislation, authorizing the President to commandeer property, including coal mines and pipe lines, to supply the public with fuel at reasonable prices. Constitutional amendments have been proposed by Representative Collins, Democrat, Mississippi, giving Congress power to take private property without compensation during war, and by Senator Dill, Democrat, Washington, to take such property with or without compensation. Senator Hastings, Republican, Delaware, and Representative Hoch, Republican, Kansas, presented bills to place pipe lines under jurisdiction of the Interstate Commerce Commission. Senator Norris, Republican, Nebraska, and Representative LaGuardia, Republican, New York, presented bills to forbid the issuance by courts of injunctions in labor disputes. Regulation of security issues through the Federal Trade Commission has been suggested by Representative McClintic, Democrat, Oklahoma, and the licensing of corporations under the body is proposed by Representative Tinkham, Republican, Massachusetts.

AIR SEPARATION AND FELDSPAR

(*From page 28*)

the process as well as iron bearing minerals which occur in small quantities even in the most carefully selected feldspar.

In fineness the product passes a 20-mesh screen and 95 percent is retained on a 200-mesh standard testing sieve. It is prepared especially for the glass trade and marketed under the registered name of Granular Glasspar.

Mining

EXTENSION of the industry following the application of air separation and continuous grinding was not confined to the milling end of the business. A parallel and equally important development took place in feldspar mining. Experience gained through chemical analysis of the product enabled the small southern producers to compete with plants obtaining their crude feldspar supply from the larger deposits in New England and Canada. Within three or four years after the inauguration of a complete analysis service, the South took the lead in feldspar production. Since that time, North Carolina alone, or more accurately the 400 to 500 square mile area in which the Minpro plant is located, is producing over 50 percent of all the feldspar consumed in the United States. Chemical control made possible the utilization of the product of small mines, it resulted in the development of reserves of crude spar, ranging in analysis to match those of all the rest of the United States and Can-

(*Continued on page 44*)

NEWS
of the mining field

Eagle-Picher Buys Consolidated and Adams Properties

Stockholders of the Consolidated Lead & Zinc Company on December 11 approved of the sale of its holdings in the Tri-State District to the Eagle-Picher Mining & Smelting Company, according to an announcement by Fred N. Bendelari, president of the Consolidated Company.

All holdings of the company, except a cash balance of $85,000, were turned over to the Eagle-Picher Company for 80,000 shares of Eagle-Picher stock. The Consolidated Company remains a separate holding company under terms of the transaction. Only one of the Consolidated mines is operating at present.

Eagle-Picher has also recently bought the Adams mine, located near Picher, Okla., from the Harry Payne Whitney estate, which includes a 40-acre fee, 360 acres in leases and a modern steel mill, one of the largest and most complete in the district.

With these transactions completed, it is understood that Eagle-Picher will proceed with plans for a large central milling plant, although no definite announcement has yet been made. The company now owns close to 30 mills in the Kansas-Oklahoma field.

War Minerals Producers Win Decision

In a decision by Justice Butler, the Supreme Court upheld a decision of the Court of Appeals of the District of Columbia to the effect that war mineral producers may recover losses on account of purchase of property and interest on borrowed capital in producing or preparing to produce minerals at Government request during the World War. The suits were instituted by the Vindicator Consolidated Gold Mining Co. and the Chestatee Pyrites and Chemical Corp.

The court holds the law is "plainly broad enough to include net losses by reason of expenditures for the purchase of property and leaves no room to doubt that it was the purpose of Congress" to have them allowed and paid, and that "losses for property still owned by claimants are not excepted" by the law. In determining actual net loss, the court says the value of the property purchased and retained by claimant is to be taken into account. The court says the value of lands and plants purchased and constructed to produce minerals "was liable to, and in fact generally did, greatly and permanently decline" when the war ended.

In the case involving recovery for loss on account of interest on borrowed capital, the court says the interest constitutes a part of expenditures and cost of the undertaking and comes within the law. In determining the losses on this account, the court says it must be clearly shown that such interest was paid or the obligation incurred at the instance of one of the specified Government agencies. The court action was based on a law passed by Congress in 1929 at the instance of Senator Oddie (Rep., Nev.), authorizing court review of questions of law in the war mineral cases.

Test Zinc Road Markers in Missouri

One hundred zinc road markers have been ordered from a Joplin concern by the Missouri State Highway Department in an experiment to see if the zinc signs, with their everlasting properties, will not be more economical than the present steel markers. Steel markers cost less than one-half as much as the zinc ones, but they must be painted as often as every six months, with average around one year. If the signs should prove acceptable to Missouri, efforts are expected to be made to have them adopted in Kansas and Oklahoma.

Northwest Mining Ass'n Meets

The Northwest Mining Association held its 37th annual convention in Spokane early in December and elected its officers for the ensuing year: President, R. T. Banks; vice president, L. K. Armstrong; secretary, Leon Starmont; treasurer, Charles T. Goodsell. The officers are all of Spokane, and with the following constitute the board of trustees: A. H. Richards, Tacoma; A. E. Drucker, Pullman; F. A. Thomson, Butte, Mont.; E. W. Widdowson, Nelson, B. C.; A. W. Fahrenwald, Moscow, Idaho; Donald Callahan, Wallace, Idaho; Frank M. Smith, F. Cushing Moore, Conner Malott, C. H. Hussey, D. M. Drumheller, Jr., all of Spokane.

There was considerable discussion during the sessions on the state securities acts and blue-sky legislation, but with no very definite action. There was also much agitation of the silver question, with a resolution asking President Hoover to call an international conference, and a resolution passed asking for new provisions as to the tax problem of mine depletion.

Colorado Springs Scene of Annual Mining Meeting

Colorado Springs will be the scene for the 1932 annual meeting of the Colorado Mining Association and the Colorado Chapter of The American Mining Congress on January 14 and 15. This marks the first time that this convention has ever been held outside of Denver, and committees in charge of arrangements are bending every effort to make the meeting the success it has always been.

The convention will open at 10 a. m., January 14, at the City Auditorium, and the Sowbelly Dinner, a feature which has become famous, will be held at 6 p. m., January 15. A "mining boom" parade will be staged in Colorado Springs the day the meeting opens, and prospectors in overalls and corduroys, burros packed for the hills and old stage coaches will march in reminiscent file.

Copper Range to Take Over St. Mary's Company

Stockholders of the Copper Range Company and the St. Mary's Mineral Land Company have approved a proposal to have Copper Range acquire the property and assets of St. Mary's on a share for share basis. The former, which operates the Champion mine and the Copper Range Railroad in the Michigan copper country, will issue 160,000 of its shares and exchange them for the 160,000 shares of St. Mary's. The St. Mary's company, which has a one-half interest in the Champion mine, was incorporated in 1863 to acquire 180,000 acres of land given by the State of Michigan for the construction of the first ship canal at Saulte Ste. Marie. These lands, in Houghton, Ontonagon and Keweenaw Counties, formerly included the tracts on which the Calumet & Hecla, Baltic, Tri-Mountain, Champion, Ojibway and other mines have since been developed.

Annual Mining Institute at Univ. of Washington

The Annual Mining Institute of the College of Mines, University of Washington, will be held during the week beginning January 18. The sessions will open on Monday morning at Mines Laboratory and will continue throughout the week. The courses are open to any person interested in mining or metallurgy and no charge is made for any of the courses. In addition to the regular faculty of the College of Mines, speakers who are prominent in the industry in the Pacific Northwest will address the Institute.

Feldspar Duty Decreased

Acting on a report of the Tariff Commission, based on an application last April of the Consolidated Feldspar Corporation, an importer, the President proclaimed a reduction in the tariff duty on imported crude feldspar from $1 to 50 cents per ton, the maximum allowed by law, effective January 1. The present duty of 30 percent advalorem on ground feldspar was not disturbed.

The report of the commission was based on the differences in foreign and domestic production costs. The cost of Canadian feldspar, excluding the grinding costs, but including transportation from mines to mills and principal American markets, is shown to be $2.44 per ton in excess of the cost of domestic feldspar. The average cost of producing crude domestic feldspar in 1930, the report says, was $6.90 per ton, f. o. b. cars at mine shipping point, and $9.76 in Canada.

Investigation of Lead Costs Dismissed by Tariff Commission

The Tariff Commission announces that in accordance with a Senate resolution adopted December 14, 1931, the investigation instituted to ascertain the differences in costs of production of lead has been discontinued. This investigation was instituted in accordance with action taken by the last session of Congress and the report of the results of the investigation was to have been made to the Senate.

Senator King who introduced the original resolution also offered the resolution to rescind the order for investigation.

Soviets Propose Cut in Manganese Output

The Soviet authorities have planned a heavy reduction in the output of manganese ore during the current year, according to a report to the Department of Commerce.

In the fiscal year 1929-30, Soviet Russia produced 1,444,166 metric tons, roughly 44 percent of the total for the world. The planned output for the calendar year 1930 was 1,583,000 metric tons; it has been set at 960,000 tons for 1931, a reduction of 623,000 tons or approximately 40 percent. This planned reduction amounts to 43 percent of the actual output in the fiscal year 1929-30, the last 12-month period for which definite production statistics are available.

Platinum Producers Combine

An agreement has been reached between the chief platinum producers, it is reported by the Commerce Department, as a result of which an English company has been formed with the title of "Consolidated Platinums," which has concluded contracts to buy and resell virtually all the new platinum production in the U. S. S. R., Canada, South Africa and Columbia, constituting the major portion of the world's output.

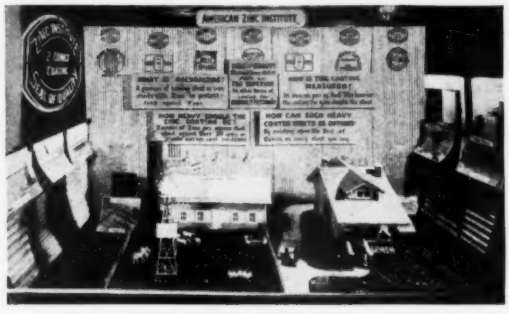
In addition to regulating the industry, it is the intention of the management, it is said, to undertake an intensive system of propaganda for the purpose of finding new outlets, encouraging the demand and extending the market for the commodity.

GALVANIZED EXHIBIT ATTRACTS ATTENTION

MANY thousands of farmers and home owners were given an object lesson in the value of quality roofing by the exhibit of the American Zinc Institute, which has been making the rounds of fairs and show places since last summer. The exhibit was presented at the Missouri, Ohio, and Indiana State Fairs, at the Dairy Cattle Congress at Waterloo, Iowa, at the American Royal and International Live Stock Expositions in Kansas City and Chicago, and at the American Farm Bureau Exposition of Progress in Chicago. Further presentations of the exhibit are being scheduled.

The exhibit, shown in the accompanying photograph, is designed to be as fully self-explanatory as possible, and to educate the consumer in the economy of heavy-coated galvanized sheets. The complete story of the "Seal of Quality" product, with its 2-ounce zinc coating, is presented in visual form, and the long life and freedom from maintenance cost of these heavy-coated sheets is demonstrated by samples of similar sheets still in good condition after many years of actual service.

Up to the present, 10 manufacturers of galvanized sheets have availed themselves of the opportunity to use the "Seal of Quality" mark under the Zinc Institute license, which involves rigid inspection and testing of the product to insure the maintenance of the 2-ounce coating standard.



Taxes Paid by Mining Industry

Mining and quarrying companies to the number of 5,211 paid income taxes of $44,318,798 to the Government on their operations in 1929, according to statistics of income based on returns filed in 1930, just issued by the Internal Revenue Bureau. This was an increase over income tax payments for 1928 when mining companies paid $36,751,194. The 1929 taxes represented 10.29 percent of the net income of the companies, whose deductions included $242,753,213 for depletion and $228,329,784 for depreciation.

The various branches of the mining industry paid taxes for 1929 in the following amounts:

$20,053,890 by 295 iron, copper, lead, zinc, gold, silver and quicksilver companies on net income of $189,688,964.

$1,339,793 by 62 anthracite companies on $12,908,668 net income.

$3,940,062 by 905 bituminous, lignite and peat companies on $39,396,569 net income.

$10,437,571 by 1,850 oil and gas companies on net income of $104,548,662.

$5,711,646 by 1,069 asbestos, clay, granite and other mineral companies on net income of $54,915,098.

$2,835,836 by 1,030 lessors and holders on net income of $29,068,981.

Two Tri-State Mines Go 11 Months Without Accident

Two mines in the Tri-State district, the Bird Dog No. 11 and the West Side, both operated by the Commerce Mining & Royalty Company, worked the first 11 months of 1931 without a lost-time accident, according to the accident prevention department of the Tri-State Zinc & Lead Ore Producers Association. Figures for December are not yet available.

Twelve plants of four companies worked through the month of November without accident.

Decreased Funds for Mine Bureaus

Practically all Government bureaus are affected by appropriation cuts recommended by the President. For the Bureau of Mines $2,064,530 is recommended, a decrease of $214,235 from the current year; Geological Survey $2,904,000, decrease of $237,740; Bureau of Standards $2,630,255, decrease $244,315; Mint Service $1,508,980, decrease $222,940.

Safety Banquet Given by Phelps Dodge Copper Queen Branch

Executives and bosses of Phelps Dodge Corporation's Copper Queen Branch attended a banquet in Bisbee, December 12, given by Captain J. P. Hodgson, manager of the mining division, safety work being the chief topic of discussion.

Captain Hodgson, acting as toastmaster, welcomed the former Calumet & Arizona men into what he termed the "Phelps Dodge family," and urged upon those present the necessity for "good housekeeping" in all of the operations.

The safety first policies of the organization which have been in operation since 1925 were thoroughly explained by H. C. Henrie, manager of the labor department. He emphasized the necessity for what he termed a "safety atmosphere," explaining that if every man realized that safety first was a vital part of his job, there could and would be a reduction in accidents.

A. C. Riefsnider, superintendent of the mechanical division, told of the beginnings of the safety first movement in 1912, of its progress in various states and the necessity for cooperation in accident prevention.

H. M. Lavender, mine superintendent of the branch; Fred Juliff, safety engineer, and Mr. Harris, of the mechanical division, also made addresses.

TARIFF COMMISSION REPORTS ON COPPER COSTS

Pointing out that the domestic production of copper in the United States, after averaging about 48 percent of the world's total in the five years preceding 1930, dropped to 40 percent of the world production in 1930, the Tariff Commission on December 22 announced its findings in an investigation of foreign and domestic production costs of copper. The investigation was made in response to Senate Resolution 434, of the Seventy-first Congress.

"The fact that American capital controls a number of the most important foreign properties, thus assuring a further source of raw material, contributes largely to the economic importance of the domestic refining and manufacturing industry," the commission stated.

Most of the copper imported into the United States arrives in the form of "blister," the comission explained. The cost comparison between refined copper produced in the United States from domestic ores and blister copper produced in foreign countries, plus the cost of refining such blister in the United States, shows for 1928, described as the most representative of the three years, an excess of average domestic costs over costs for all foreign countries of 1.42 cents per pound when depletion of ore and interest on investment are considered, and .49 cent per pound when these items are excluded. Comparison with the lowest cost foreign region, Latin America, exclusive of northern Mexico, together with Spain, show an excess of domestic over foreign costs of 1.54 cents when depletion and interest are included, and 2.26 cents without those items.

The commission states that if in addition to the foreign refined copper produced as blister and refined in the United States there should be added the copper refined in foreign countries, together with the cost of transporting it to the United States, the excess of domestic over foreign costs in comparison with all foreign countries would be increased by half a cent a pound when depletion and interest are considered. The excess of domestic costs over those for Latin America and Spain would be increased more. In computing domestic and foreign costs, interest on investment has been calculated at 6 percent. The commission says the question has been raised whether the risks of an enterprise in certain foreign countries would justify a higher interest rate, and if allowed, the excess of domestic costs would be slightly reduced. The commission says cost estimates made by engineers on copper being produced in 1931 or expected shortly to be produced in Africa, would tend to reduce the average foreign costs, but it is impossible to estimate with precision the future cost of production in that country.

Michael Curley Heads Arizona Chapter

Michael Curley, general manager of the New Cornelia Mines, Phelps Dodge Corporation, was elected governor of the Arizona Chapter of the American Mining Congress at the annual meeting held December 14, at Phoenix. He succeeds T. H. O'Brien, general manager of Inspiration Consolidated Copper Company.

Other officers elected for the coming year include William Koerner, general manager of Magma Copper Company, first vice governor, and W. Val DeCamp, general manager of the United Verde Copper Company, second vice governor. William B. Gohring was reelected secretary of the organization.

Phelps Dodge Gives $20,000 for Unemployment Relief

Donation of $20,000 to the unemployment relief fund in Bisbee and Douglas, Arizona, by the Phelps Dodge Corporation was announced December 18 by Captain J. P. Hodgson, manager of mines of the Copper Queen Branch. This amount, it was stated, was decided upon after a thorough survey of the needs of the two districts, to and including June 30.

"Our corporation is now operating its properties at a loss," Captain Hodgson stated, "it being the feeling of our stockholders and directors that employment must be provided for as many people as possible. This loss has already taken much of the profits which the corporation made in 1929 The people of the district must realize this fact. Cold blooded business would demand that mining operations cease since there is not only no profit in the operation but very severe losses."

Receivers Named for Interstate Lead & Zinc

A friendly receivership action has been taken by certain stockholders and debenture holders of the Interstate Lead & Zinc Company, with a view to conserving all of the assets of the corporation, and E. H. Gibb, of New York, and A. J. Stockley, of Wilmington, have been appointed joint receivers by the Delaware State court.

"The properties will be held intact and idle," according to Mr. Gibb, "and the assets of the company conserved until such time the company can reorganize." The company has outstanding $621,000 in debenture bonds, interest on which has been paid in full, it was stated. The debenture account has been decreased from an original of $1,000,000. The capital structure consists of 500,000 $1 par value shares authorized, with 431,000 outstanding.

The company owns the Hartley, Woodchuck and Cherokee mines in the Tri-State district, and the lease known as the Townsite in Cardin, Okla.

Less Iron Ore Shipped

Iron ore shipments from upper Lake ports in November totalled 420,594 tons, against 198,688 tons in November, 1930. Shipments for the season to December 1 were 23,467,786 tons, compared with 46,582,982 in the same period in 1930.

Officials of the San Francisco Exchange are working out details for trading in silver in small units on the exchange floor. The move, it is said, is in response to a demand for a trading unit smaller than the 25,000 ounces available on the National Metal Exchange in New York.

Muscle Shoals Report to Congress

President Hoover transmitted to Congress on December 17 the report of the Muscle Shoals Commission recommending private as opposed to governmental operation of the Muscle Shoals project and the leasing of the properties under a 50-year contract for the primary purpose of producing commercial fertilizer.

In addition to the declaration in favor of a private lease of the Government's properties, the commission's recommendations, as previously announced, urge preference in leasing to a farmers' non-profit-making organization; the sale of surplus power at the switchboard to Tennessee Valley interests, with preference for public authorities and chemical operations; and the use of the Federal power rentals for research and the storage of fertilizer.

Federal Power Commission Appointment Upheld by Court

The right of George Otis Smith, former Director of the Geological Survey, to hold his office as chairman of the Federal Power Commission, despite the Senate's demand upon President Hoover for reconsideration of its action in consenting to the nomination, was upheld December 5 by the Supreme Court of the District of Columbia.

The court held that when the Senate, in conformity with its own rules, unanimously ordered notice of its consent to the appointment of Mr. Smith to be sent to the President, it surrendered its control of the matter and its right to reconsider its action.

A. S. & R. to Manage Mount Isa Refinery

Management and operation of the Mount Isa and Mining Trust, Ltd., lead refinery in England, is to be turned over to the American Smelting & Refining Company, it is reported, and the latter will make a loan of $1,000,000 to the Mount Isa lead mines in Australia.

The new capital is to be used in developing the company's Australian properties. American Smelting & Refining required an interest in the Mining Trust in 1930 when it provided capital for equipping the Mount Isa mines and for the construction of the trust's silver-lead refinery.

Kennecott Halves Dividend

Directors of the Kennecott Copper Corporation on December 7 reduced the annual dividend basis to 50 cents from $1 declaring a quarterly disbursement of 12½ cents a share, payable January 2. In July, 1930, the rate was cut from $5 annually to $3; later it was reduced to $2, and in July, 1931, to $1.

The Alaska Juneau Company, large gold producer, which a year ago returned to the dividend-paying class after an omission of payments since 1897, has increased its quarterly rate from 10 to 12½ cents per share, payable February 9. This action was taken by directors on December 24.

Personals——

DR. C. H. MATHEWSON, of Yale University, has been nominated to receive the 1932 award of the James Douglas medal, sponsored by the American Institute of Mining and Metallurgical Engineers, for his research which has made for wider and more efficient utilization of non-ferrous metals and alloys. His scientific contributions to the art of working and annealing non-ferrous metals are cited as outstanding.

✤

J. V. N. DORR was elected president of the American Institute of Chemical Engineers for 1932 at the annual meeting in Atlantic City recently.

✤

ROBERT E. TALLY, vice president of the United Verde Copper Company, left New York recently for an inspection trip to the company's properties in Arizona, to be gone for about a month.

✤

EDWARD H. ROBIE has been appointed assistant secretary of the American Institute of Mining and Metallurgical Engineers, filling the vacancy created by the recent advancement of A. B. Parsons to the secretaryship following H. Foster Bain's resignation. Mr. Robie is a metallurgical engineer and has been on the editorial staff of *Engineering & Mining Journal* for about 12 years.

✤

M. VAN SICLEN, mining engineer formerly with the Bureau of Mines, has been elected chairman of the Washington Section of the American Institute of Mining & Metallurgical Engineers, with Dr. R. R. Sayers, chief surgeon of the Bureau of Mines, as vice chairman.

The Section's last meeting for 1931 was featured by an illustrated address by FRANK L. HESS on "Sampling Tungsten Ore in the Bolivian Andes."

✤

VICE PRESIDENT CHARLES CURTIS, while on a recent visit to Bisbee, Ariz., was presented with a gavel shaped from pure copper, made by A. C. REIFSNIDER, superintendent of the mechanical division of the Copper Queen Branch, Phelps Dodge Corporation.

✤

WALTER B. CONGDON, Duluth, Minn., has been elected to the board of directors of the Consolidated Copper Mines Corporation. Mr. Congdon was a member of the Calumet & Arizona board for a number of years prior to its merger with Phelps Dodge.

✤

H. Y. WALKER, of New York, a vice president of the American Smelting & Refining Company, was in Salt Lake City early in December inspecting the company's operations.

✤

BANCROFT GHERARDI, vice president of the American Telephone and Telegraph Company, was reelected as president of the American Standards Association for the year 1932 at the annual meeting of the association held in New York on December 9.

✤

JOHN ANDERSON, assistant to J. G. Barry, vice president, has been appointed secretary of the sales committee of the General Electric Company, it is announced by Mr. Barry. Mr. Anderson succeeds E. G. Waters, who is retiring at his own request on the completion of more than 42 years continuous service, the past 25 being as secretary of the sales committee.

JAMES B. SMITH, president of the Spring Canyon Coal Company and the Royal Coal Company, with operations in Utah, has been elected president of the Utah Coal Producers' Association, succeeding the late Wm. D. Brennan, who headed the Utah Fuel Company. For more than two years Mr. Smith has represented the Utah and Southern Wyoming operators on the directorate of the National Coal Association.

✤

CHARLES H. DORRANCE, of Scranton, Pa., has been named president of the Penn Anthracite Collieries Company, succeeding R. H. Buchanan, who resigned.

✤

HARRY L. GANDY has been elected president of the Sheridan-Wyoming Coal Company, effective January 1, 1932, according to an announcement by Michael Gallagher, former president, who continues as chairman of the board. Mr. Gandy continues as president of Pittston Coal, Inc. The Sheridan-Wyoming Coal Company, with general offices at Kleenburn, Wyo., and mines at Acme and Monarch, is the largest coal producer in northern Wyoming. Mr. Gallagher has also announced the election of C. R. Nash, of New York, as an additional vice president of the Sheridan-Wyoming Coal Company.

✤

PROF. H. G. TURNER, director of research for the Anthracite Institute, recently joined the faculty of the School of Mineral Industries of Pennsylvania State College as research associate in fuel technology.

✤

At the annual meeting of the Smokeless Coal Operators' Association of West Virginia, held in New York early in December, COL. W. D. ORD was reelected president. He is president of the Empire Coal & Coke Company, Landgraff, W. Va., and treasurer of the National Coal Association.

✤

C. W. TRAUGHBER has been appointed as technical and metallurgical adviser to the Northern Blower Company, Cleveland. Mr. Traughber comes to the organization after an association with Anaconda Copper Company, American Smelting & Refining Company, and other large smelting plants, for many years.

✤

KENNETH C. BROWNELL has been made manager of metal sales for the American Smelting & Refining Company, according to an announcement by Hamilton M. Brush, vice president in charge of sales. He succeeds V. C. Leftwich, who has accepted a position with the General Cable Company.

✤

R. L. SUHL, for the past three years assistant to the late Frederick S. Jordan succeeds him as manager of the Nickel Sales Department of the International Nickel Co., Inc. Ramson Cooper, Jr., Walter C. Kerrigan and Charles McKnight have been appointed as MR. SUHL'S assistants.

✤

S. J. DICKENSON, secretary-treasurer of the Mary Helen Coal Corporation, Coalgood, Ky., was recently elected president of the Harlan County Coal Operators Association. B. W. WHITFIELD, Sr., president of the Harlan Collieries Company, was chosen vice president, and GEORGE S. WARD, who has been assistant secretary since 1916, succeeded the late Ed Clayton as secretary.

C. M. MOORE, president of the Moore Coal Company, Knoxville, has been reelected president of the Southern Appalachain Coal Operators Association. Other officers elected are: R. S. YOUNG, secretary-treasurer, Blue Diamond Coal Company, first vice president; N. B. PERKINS, president, Southern Mining Company, second vice president, and R. E. HOWE, secretary-treasurer.

✤

Under the direction of DR. CURTIS L. WILSON, professor of metallurgy of Montana School of Mines, experiments are being carried on at the school for hardening gold without changing its inherent qualities.

✤

Obituary——

THOMAS T. BREWSTER, president of the Mount Olive & Staunton Coal Company, and one of the best known operators in the country, died of heart attack on December 14 at his home in Webster Groves, St. Louis, Mo. He was 64 years of age.

Mr. Brewster has served as a vice president and director of the American Mining Congress and was at one time president of the Fifth and Ninth District Coal Operators Association. During the war he was a member of the Federal Fuel Administration Board.

THOMAS WILLIAM DAWSON, aged 55, vice president of the H. C. Frick Coke Company, died the latter part of December at his country home near Scottdale, Pa. Mr. Dawson became affiliated with the Frick Company following his graduation from Ohio Northern University. He served as chief engineer for the company prior to his election as vice president in July, 1927.

Mr. Dawson took an active part in the affairs of the American Mining Congress and will be remembered for his work in the preparation of the programs for the organization's annual coal conventions and expositions.

RUSSELL G. WAYLAND, assistant general manager of the Homestake Gold Mining Company, Lead, S. Dak., died November 28, death being due to heart failure. Mr. Wayland was born February 16, 1884, and graduated in mining engineering from the University of Washington in 1906. He served with the Alaska Treadwell Mining Company for a number of years, the latter part of the time as general superintendent of the company. In 1918 he entered the Army as a lieutenant of engineers, and in 1919 went to Homestake to accept the position which he held until his death.

ROBERT HENRY BRADFORD, for more than 20 years professor of metallurgy at the University of Utah, died at his home in Salt Lake City December 9.

FREDERICK SAMUEL JORDAN, for the past 30 years an outstanding figure in the nickel industry, died at his home in New York December 16, in his sixty-third year. He was sales manager of the nickel department of the International Nickel Co., Inc.

JOHN S. BROPHY, president of the Piedmont & Georges Creek Coal Company, died at his home in Frostburg, Md., December 14, following a heart attack which he suffered a few days before. He was 65 years old.

Court Sustains Coal Companies On Assessment Methods

The contention of the Cumberland Coal Company, Piedmont Coal Company and Greene County Coal Company that valuations of their properties in Greene County, Pa., should take into consideration such factors as accessibility to market, operating and transportation costs, was upheld by the United States Supreme Court in a recent decision. In an opinion by Chief Justice Hughes, the court ruled that the assessments ignored the differences in the value of the coal lands and that the companies are entitled to a reassessment, which will place them on a basis of equality due to the differing values of their holdings.

Coal Mining Lease Held as Realty In Kentucky

For purposes of taxation, a coal mining leasehold is real estate and not personal property, the Kentucky Court of Appeals has held, affirming a judgment of the Harlan Circuit Court in a case against the Elkhorn Piney Creek Coal Company.

"The importance of the question," the court said, "lies in the fact that real estate takes a rate of 30 cents while personalty must pay 50 cents on each $100 of taxable value."

"A review of the case," the opinion concluded, "results inevitably in the conclusion that the rights created by a coal lease conferring upon the lessee for a long term of years the right to remove and dispose of the coal, perhaps to exhaustion, coupled with the right to build and maintain tipples, miners' houses and other fixtures, constitutes real estate for the purpose of taxation under our present statutes."

Federal Agency to Control Coal Industry Urged by Lewis

Legislation authorizing the Federal Government to regulate the coal mining industry was advocated by John L. Lewis, president of the United Mine Workers, in testimony before the Senate Manufactures Committee which is investigating proposals for a National Economic Council. Under the provisions of a bill proposed, similar to the Watson bill of 1928, the miners' union suggests that the Government license and regulate coal operators, encourage mergers, and authorize selling pools and marketing agencies under a Federal Coal Commission.

In his review of conditions, Mr. Lewis cited a number of former attempts at stabilization and outlined the proposals made from time to time. These, he said, are consolidated in his bill, on which he will seek action this session of Congress.

"During the last 10 years," he stated, "two government commissions have exhaustively investigated the troubles of bituminous coal and both have condemned the overexpansion of the industry in man power and capital assets. It has also been recently characterized by an eminent engineer as the worst functioning of all industries.

"The United Mine Workers has served as the only stabilizing force which the bituminous coal industry has ever known."

COAL CONVENTION AND EXPOSITION TO BE HELD AGAIN AT CINCINNATI

THE coal convention and exposition of mining machinery and equipment, held annually by the American Mining Congress, will be staged in Cincinnati again this year, the week of May 2 to 7. George C. McFadden, of Chicago, vice president of the Peabody Coal Company, has accepted the chairmanship of the Program Committee and plans are already under way for meetings of various district committees for the purpose of formulating a series of sessions that will be of the utmost interest and value to those attending.

The Mining Congress Manufacturers' Division, under the direction of Charles C. Whaley, chairman, is arranging a group of exhibits that will be equally as interesting as any ever held.

Senator James J. Davis, of Pennsylvania, recently stated that the original Watson coal bill is in process of being revamped, and that he, Representative Kelly, of Pennsylvania, and others, were at work to give it some form that all will agree on.

Dean Holbrook Heads Coal Mining Institute

Dean E. A. Holbrook, of the School of Engineering, University of Pittsburgh, was elected president of the Coal Mining Institute of America at the forty-fifth annual meeting of that body held recently at Pittsburgh. The three vice presidents elected are: F. B. Dunbar, general superintendent, Mather Collieries Company, Mather, Pa.; C. L. Lutton, safety director, H. C. Frick Coke Company, Pittsburgh; and F. E. Bedale, Consolidation Coal Company, Fairmont, W. Va. Managing directors elected were: M. D. Cooper, R. C. Beerbower, J. J. Forbes, G. S. McCaa, J. W. Paul, and N. G. Alford, all of Pittsburgh; T. G. Fear, Fairmont, W. Va.; T. W. Cunningham, Somerset, Pa.; G. W. Riggs, Uniontown, Pa., and J. V. Berry, Johnstown, Pa. While the sessions were in the main devoted to mechanical and safety measures, there was also some discussion of the economic problems of the industry.

E. H. Shriver Heads W. Va. Institute

The West Virginia Coal Mining Institute held its twenty-fourth annual meeting at Wheeling November 27 and 28. Papers were presented on the following subjects: "Mine Drainage," by S. Austin Caperton, general manager of the Slab Fork Coal Company; "Modernization of Mine Haulage," by Thomas A. King, assistant chief engineer, New England Fuel & Transportation Company; "Relation of Mine Cars to Costs," by F. S. Follansbee, chief engineer, Koppers Coal Company; "Notes on Coal Cleaning," by A. J. King, of Huntington; "Coal Mine Ventilation," by Homer G. Bell, of Fairmont; and "Rationalization Methods for the Bituminous Industry," by Ralph N. Harris, Morgantown.

E. H. Shriver, of Charleston, was elected president of the institute, and the following were elected vice presidents: M. L. Garvey, Charleston; E. S. Wade, Wheeling; D. L. Brown, Grant Town; James Sisler, Morgantown, and George Caldwell, Wellsburg. Charles E. Lawall was reelected as treasurer.

Illinois Mines Have Improved Safety Record

The bituminous mines of the State of Illinois, during the first 11 months of the present year, mined 79,557 tons more per fatality than during the same period of the previous year. These mines, during the month of November, 1931, employed 40,470 men, and produced 3,508,200 tons with six fatalities, and 544 injuries (loss of one day or more). One hundred and forty mines were operated, with an average of 12.6 days worked. Comparable figures showing the November average for the 5-year period 1926-1930 are: 59,960 men employed, 5,795,775 tons produced, 17.8 days worked, and 187 mines operated. The production for the first 11 months of the present year was 38,696,781 tons, and for the same period of the previous year, 46,568,958 tons. For the 1931 period, there were 552,811 tons mined to one man killed, as compared with 473,254 tons per fatality for the same period of 1930, and a 5-year average for that period of 467,800 tons.

Extent of Alaskan Coal Deposits Sought

The Department of the Interior, in its endeavor more definitely to determine the extent of coal deposits in Alaska, is calling for bids for the drilling of four core holes in the anthracite ridge basin in the south central part of that territory. This drilling is supplementary to an investigation of mineral resources in Alaska, authorized by the last Congress and prosecuted during last summer by the Geological Survey. The cores to be taken out will be to a depth of 1,500 to 2,000 ft. and will show the thickness of coal deposits in this promising area. Bids for the work, which is to be done during the coming season, will be opened at the Department of the Interior on January 15.

BOUQUETS *and* **Brickbats**

We are indebted to Washington Correspondent Charles Brooks Smith for having called to our attention tidings of better things to come in our potentially great coal industry. The editor of THE MINING CONGRESS JOURNAL, billed as "one of the best crystal gazers in the coal industry," goes into a seance and emerges with these cheering words:

"Coal has a positive genius for attracting to itself unfavorable comment. In a multitude of virtues only the weaknesses are dwelt upon. Coal is 'poorly managed.' Coal is a 'bankrupt industry.' Coal is a 'disgrace to the industrial family.' Coal is this and that and the other thing—all uncomplimentary."

Making due allowance for poetic license and prejudiced panjandrum, Writer Smith adds a few amendments that are appealing. Before the New King Coal can look down on his loyal subjects from an untottering throne:

"Employes must be voluntarily treated like human beings; esprit de corps must replace brutal armed mine guards; operators must give more of their time and thought to successfully running their mines instead of giving it to running the politics of the state; they must keep their fingers out of the courts—county, circuit, state, supreme and federal; they must give up 'Yellow Dog' wage contracts; get rid of the feudal baron idea, there isn't room for it in this country."

Both of these are large orders, difficult to fill, yet it is hard to believe that both are not correctly stated. Coal must certainly come into its own some day, but that "some day" will not arrive until the evils that have been enumerated have been eliminated.

The new willingness to talk it over, evidenced by the New York and other meetings, raises the hope that there are forces working to that end.—*The Morgantown, W. Va., Dominion News.*

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It has been suggested by our safety engineer that a compilation of the many splendid articles on safety which have appeared in THE MINING CONGRESS JOURNAL in book form would represent a very excellent reference book for safety work in general, in both metal and coal mines. I therefore offer this as a suggestion to you for your further consideration.

With kindest personal regards, I remain,

Yours very truly,
W. V. DECAMP,
General Manager, United Verde Copper Company, Jerome, Ariz.

⋈

In reply to your very kind letter of October 27, I have taken the matter up with our department and find they are so well pleased with the Calumet & Hecla number of the JOURNAL that they would like to have 50 copies to put in the library for the use of classes and they would also like to have 60 copies so that each member of the faculty could have his own.

Of course, it is probably out of the question for us to procure as many copies as we could use and I am mentioning it more because of the appreciation indicated than because I expect you to be able to supply them. It does indicate, however, that we can use to a very good advantage any number up to this amount which you are willing to send us. We would appreciate receiving what you will be able to spare us.

Personally, I am very much pleased with the issue and the copy which you sent me is lying on my desk for reference and will stay there for some time before I permit it to go into my bookcase.

Very truly yours,
W. O. HOTCHKISS,
President, Michigan College of Mining and Technology, Houghton, Mich.

⋈

I have been much interested in reading the issue of your JOURNAL devoted to copper, a copy of which you were good enough to send to me recently. If you can let us have three additional copies I think we can use them effectively.

Sincerely,
H. E. CLIFFORD, *Dean,*
The Harvard Engineering School, Harvard University, Pierce Hall, Cambridge, Mass.

⋈

Who and what to believe! I had just finished reading the December letter of the National City Bank of New York, several pages of which were devoted to seemingly calm, thorough discussion of the silver question citing statistics regarding the silver problem in India and China, and how small a part silver plays in the monetary world and its small total of the whole.

It made me think silver equalization advocates were all wrong and silver as it is, was all right.

Then I read the two fine convincing articles in your gold and silver issue, and now I am all at sea. And I try to keep up with the leading questions of the day. It looks like a layman is a fool for trying to.

Yours respectfully,
J. H. PARKIN,
Parkin Printing and Stationery Co., Little Rock, Ark.

⋈

We desire to obtain copies of your JOURNAL for October, November, and December issues of this year, for editorial use in the preparation of articles in the section on mining of our new encyclopaedia, now being made ready for the press. We should appreciate receiving copies of same, if available for distribution, as promptly as possible. If there is a price charged, kindly inform us, and we will remit.

Very truly yours,
F. W. JOHNSON, *Ass't Editor,*
Book Editorial Department, P. F. Collier & Son Co.

The tabulation on page 577 of the copper issue of THE MINING CONGRESS JOURNAL, is indeed interesting and a most valuable addition of statistical data to the files of those interested or engaged in the copper industry.

In fact I found the number very absorbing throughout and wish to take this opportunity of extending my congratulations and appreciation for the activities of the Congress. In my opinion the Congress is performing a real service for the mining industry generally.

Yours very truly,
D. D. MOFFAT,
Salt Lake City, Utah.

⋈

Your October issue, being the copper number, contains a world of useful information which should be of value to every mining man.

I think without doubt that all operators in Utah are subscribers to your magazine, and are therefore supplied with the copy of this issue. It occurs to me, however, that the bankers in Utah are vitally interested in the mining industry, and if you will send me about five or six copies I will distribute them.

Yours very truly,
D. D. MUIR, JR.,
Vice Pres. and Gen'l Mgr., United States Smelting Refining and Mining Co., Salt Lake City, Utah.

⋈

My sincere congratulations upon your splendid October issue. It is most interesting reading and something one can file for reference. Really wish you could have more of these metal mining articles to the exclusion of so many coal articles. From your standpoint I suppose the coal is a most interesting department but the metal miners don't care a whoop about it. Nowadays coal miners can't contribute very much. As a matter of fact the metal miners are down too, but generally speaking, they are a more substantial outfit.

Very truly yours,
H. W. SEAMAN,
Clinton, Iowa.

⋈

I have just finished looking over THE MINING CONGRESS JOURNAL for October, 1931. I was so impressed with the value of this issue to all metal mining men that I feel constrained to tell you about it. To secure and prepare for publication all of these splendid articles, from the responsible authors thereof, must have been a considerable task and the result appears to be a veritable textbook on practically all phases of mining, treating, and shipping ore.

Sincerely,
EDWIN HIGGINS,
Managing Director, California Oil and Gas Assn., Los Angeles, Calif.

⋈

I acknowledge with thanks receipt of the current issue of THE MINING CONGRESS JOURNAL. This issue is of such excellent merit that it will be very valuable to us to have three or four extra copies for distribution among our senior mining students. I feel that you and the members of your staff have earned the right to be very proud of such an excellent publication.

Sincerely yours,
ERNEST N. PATTY, *Dean,*
The Alaska Agricultural College and School of Mines, College, Alaska.

I should be very glad to distribute extra copies of your JOURNAL containing the articles on copper. We have about 50 seniors, and will be glad to give them a copy each if you can spare that many.

Yours truly,

R. B. KETCHUM,
Dean of Engineering,
School of Mines and Engineering,
University of Utah,
Salt Lake City, Utah.

Accept my thanks for the additional copy of the November issue of the JOURNAL. This issue reflects great credit on its publishers.

Yours truly,

C. V. DREW,
Cerro de Pasco Copper Corpn.,
New York.

We think so well of the article on "Accident Prevention Work of the Phelps Dodge Corporation," as outlined in the July, 1931, issue, that we would like to have 12 copies of this article.

Very truly yours,

J. J. CRANE,
Mines Accountant,
Pine Hill Coal Company,
Minersville, Pa.

"How much importance is there in export? Except as a bonus or windfall, a little extra business to be picked up, which we all like, it is of no permanent importance. The writer thinks that it has no permanent bearing on prosperity.

"Foreign lands cannot buy indefinitely without exporting back to us. Little they can make that we can not, also. Little that we can ship that they can not make. If they make it, then they employ more people and enjoy more prosperity themselves. Likewise it can be with us.

"Suppose that we do lose some export business? How much is that compared, anyway, to our home business. Our export business is actually but a drop in the bucket, official big talk notwithstanding.

"Copper, poor copper, we say, we should export, and we gabble our fears of new African copper. How much copper do we export? It amounts sometimes to 20 percent. If we put on a tariff against the African copper, it will not only keep out that copper from our big market, our home market, but will raise the price on our home market. Indeed, a little prosperity at home will far outstrip the present low-priced export market.

"Everybody's natural market is at home. Why spend too much money to break into another's market 3,000 miles away? That is the other fellow's market. Let him take care of that and not try too hard to break into ours. That means price cutting, or at best low profits to overcome distance handicap—in the long run.

"What some manufacturers gain by export, others lose through import. Often those who gain do not need it as much as those who lose.

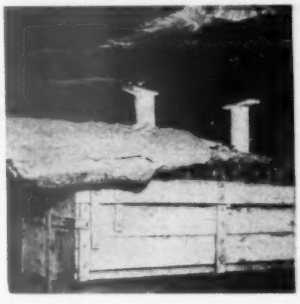
"It is not to be hoped that corporations will knowingly cease to make an extra dollar by selling abroad. However, permanent prosperity will probably not be with the world till the economic waste of export stops."

D. E. JENKINS.

Salt Lake City.

HARD-BOILED HAT SAVES MINER'S LIFE

THE vital part played by a hard-boiled hat in saving the life of a coal miner is well illustrated in the current issue of the *Employes' Magazine* of the Union Pacific Coal Company. James Murray, working in Rock Springs No. 4 Mine, was loading a car when a ton and a half of rock scaled off the roof. The larger pieces fell on the car but enough came down on the high side where the man stood to have killed him instantly had it not been for the protection afforded by his headpiece. The pictures shown, courteously furnished by Eugene McAuliffe, president of the company, give a good idea of the situation after the roof had let go. The hat worn by Mr. Murray appears to have taken quite a beating, but we dare say it will find a place for itself in the company's hall of fame. The other photograph shows the slab of rock that fell on the car. Also note the "pot hole" in the roof in the upper right corner.



Coal-Mine Fatalities in November

Ninety-six men were killed in coal mines in the United States during November, according to reports received by the Bureau of Mines from state mine inspectors. This number compares with 134 for October and 227 for November a year ago. Production of coal in November was 34,251,000 tons, a decrease of 8,000,000 tons from October and 9,534,000 tons from the previous November. The death rate per million tons of coal mined in November, 1931, was 2.80, a decrease of 12 percent from October and 46 percent from November, 1930.

November reports for bituminous mines alone showed that 84 deaths occurred in the mines in the production of 30,110,000 tons of coal. Based on these figures, the death rate per million tons was 2.79, a reduction of 46 percent from November, 1930, when there were 199 deaths and 38,609,000 tons of coal mined.

Anthracite mines in Pennsylvania reported 12 fatal accidents and an output of 4,141,000 tons of coal in November. This resulted in a death rate of 2.90 per million tons, the lowest fatality rate for any month's operation in the history of anthracite mining. In October, 1931, there were 40 deaths, with 6,551,000 tons mined, and a fatality rate of 6.11, while in November, 1930, there were 28 deaths, 5,176,000 tons and a rate of 5.41.

Reports for the period January to November, 1931, showed that accidents at coal mines in the United States caused the loss of 1,319 lives. The production of coal during this period was 402,710,000 tons, resulting in a death rate of 3.28, as compared with 3.85 for the same period in 1930.

The Court of Claims of the United States has held that profits derived by an individual from the operation of an oil and gas lease granted to him by the State of Oklahoma are not subject to the Federal income tax. Gain from the sale of such lease is taxable.

Relation of Mechanization to Unemployment Studied

While not attacking the use of labor-saving machines in industry, which are said to contribute to human progress, a committee of experts recently appointed by Secretary of Labor Doak to consider the question of the effect of machinery on employment, recommends further study in the mining, quarrying, crude petroleum and other industries to determine whether displacement of workers therein is decreasing or increasing and other related problems. In favoring the centering of employment statistics in the Department of Labor, the committee refers to the fact that many other Federal agencies, including the Bureau of Mines, collect similar statistics. The committee recommends that workers displaced by machinery be absorbed into other jobs before displacement, be protected during unemployment, be assisted in finding reemployment and be retrained before placement on new jobs. "Industry must provide opportunity for employment by reducing hours where necessary, stabilizing and regularizing employment and providing wages for a proper minimum standard of living," says the committee. "Unless this is done there must be a nation-wide system of compulsory insurance against unemployment."

The report quotes the Bureau of Mines, as saying that in mechanization of mines in preparing coal for the market, in coal storage practice and in efficiency of utilization, the United States has rapidly advanced in the wise use of its energy resources. The report states that the bituminous industry has experienced a large decrease in the number of men employed by it with virtually no reduction in the amount of coal mined, as in 1923 there were 704,793 employed while 522,150 were engaged in the industry in 1928, a decrease of 25.9 percent in employes, while the decrease in coal production was less than 0.5 percent.

AIR SEPARATION AND FELDSPAR

(*From page 36*)

ada combined, and it permitted the production of a more uniform mitted the production of a more uniform feldspar than that of the so-called "natural" product produced without chemical control.

New Ideas

JUST from a comparatively simple change in the process an industry supplying a basic raw material has been expanded in the short space of 10 to 15 years to a point where its predecessor would find nothing familiar except the crude material. This expansion and development has made possible the production of a standardized product to fit any commercial requirement at a cost as much as 50 percent below that of the product formerly supplied.

As Ray Hutchins, of the Bureau of Standards, says: "Profits are no longer the difference between selling prices and costs. Instead they are the difference between new ideas and old ones, new methods and out-of-date ones, new equipment and obsolete equipment." But, having taken advantage of these new ideas, let us pause for a moment to pay tribute to one who furnished the feldspar industry with the idea which aroused it from a century of lethargy.

MINING COSTS AND CAR CAPACITY

(*From page 33*)

would have been required for the monthly production of 33,183 tons.

There were 101.2 day men inside and 33.1 day men outside, or a total of 134.3 day men. Eleven of these were salaried men, leaving 123.3 day men to be laid off for the 3.6 days saved. These men at an average wage of $4.50 per day, amount to a saving of $554.85 per day, or $1,997.46 for the 3.6 days. This saving on the monthly production is 6.0c per ton.

The mine has 465 cars. If the larger car had been purchased, at a cost of $35.00 more per car, the $16,275.00 extra cost for the larger car would have been returned to the mine in a fraction over eight months and on the saving in labor alone.

The saving in Material on this set up would have been about 2.0c per ton due to the increased concentration.

If the mine were working steadily at its maximum capacity, the saving would be greater.

The capacity of mine cars allowing a greater concentration of working places and tonnage, has an effect on the earnings of piece work men.

The machine crew has less territory to cover and should cut more coal.

The loader should also increase his production time.

This should allow the mine to work on a lower loading and cutting rate. While this will not hold true if the mine goes along with the rest of the field on labor rates, it should give it the advantage of offering more attractive work.

In general, we want mine cars with wheels that will not get flat, or break. We want anti-friction bearings and economical lubrication, good bodies, etc. We want the most economical mine car for maintenance that is possible.

We pay extra for these things because we have been sold on them and recognize the fact that they pay dividends.

The average cost of maintenance and lubrication of cars in a widely scattered group of 13 miles is 0.7 of 1% of the total cost of coal. The high being 1.27% and the low 0.31%. The cars range in age from one year to thirteen years and are all types from old type wood cars to modern all steel cars.

If we can pay from $30.00 to $40.00 more per car for a saving of ½% of the total mining cost, we are justified in adding a like amount for a saving several times greater.

"Experiments to Determine the Minimum Amount of Coal Dust Required for Propagation of a Mine Explosion" is the title of a report recently issued by the Bureau of Mines.

Surface Coal Preparation Equipment, 1931

WE are prone to compare business done in the current year of business disturbance with former years. When doing this with the statistics as to the amount of surface coal preparation equipment installed it becomes apparent that this phase of the modernization of the mines has gone forward in considerable volume.

Late in 1930 contracts were let for several coal cleaning plants with a total capacity of 2,020 tons per hour. Counting these plants which were built this year as 1931 business there is a total coal cleaning capacity installed or contracted for of 7,840 tons per hour as against 8,185 installed in 1930. The total annual capacity, based upon an 8-hour-day and an average of 250 days per year, of these plants would be 16,480,000 tons in 1931 and 16,370,000 tons in 1930. These figures do not take consideration of the ordinary screening and hand picking tables for the two years; they merely summarize the capacity of the wet, pneumatic, and airsand mechanical cleaners.

The accompanying tabulation of preparation plants built undoubtedly omits many picking table and screening installations not reported, but in the matter of mechanical coal cleaning equipment it is believed to be fairly complete. It has been prepared through the cooperation of both the operating companies and the manufacturers concerned.

It will be observed that Pennsylvania bituminous forged slightly ahead of West Virginia in the capacity of mechanical coal cleaning plants, although the latter installed over three times as many. Pennsylvania anthracite held up well with the total of 11 new plants, and Indiana followed with two plants, while Kentucky, Illinois, Ohio and Alabama each had one.

The following table reported by the United States Bureau of Mines shows the amount of coal cleaned mechanically in 1928 and 1929:

TABLE 50—BITUMINOUS COAL MECHANICALLY CLEANED BY WET AND PNEUMATIC METHODS—1928 AND 1929

	Net tons of clean coal 1928	1929	Percent of increase
By wet methods:			
At the mines	21,188,911	26,772,000	26.3
At central washeries operated by consumers	3,807,943	4,527,000	18.9
Total wet	24,996,854	31,299,000	25.2
By pneumatic methods	3,786,185	5,844,000	54.3
Grand total	28,783,039	37,143,000	29.0

With the combined capacities of 1930 and '31 installations totalling 32,850,000 tons it is apparent that the percent of increase has risen from 29 to approximately 50 for each of the years 1930 and 1931.

U. M. W. Convention This Month

The United Mine Workers of America will meet in Indianapolis the week of January 26 for their thirty-third biennial international convention. One important matter which is expected to draw considerable discussion is the question of equalization of working time, particularly in the anthracite fields.

Anthracite delegates controlled the last convention, but recent reorganizations in the soft coal fields indicate that the bituminous delegates will predominate.

Oil Tariff Report Completed

The Tariff Commission reported to the House December 22 that domestic crude petroleum, average weighted according to quantities supplied the Atlantic coast in 1927-30, including delivery to coast refineries, cost $1.90 per barrel, exceeding by $1.03 the total cost of Venezuelan Maracaibo oil delivered on the Atlantic seaboard of the United States.

It found that crude oil production costs for all the foreign countries included in the investigation, including Maracaibo oil, averaged $1.15 per barrel, delivered to the Atlantic seaboard of the United States, which the commission interpreted as showing the domestic cost, without adjustments for yields, exceeds the foreign costs for all those countries combined by 75 cents a barrel.

Surface Coal Preparation Equipment, 1931

Coal Company	Plant Location	Capacity Net Tons Per Hour	Manufacturer	Equipment
American Coal Company of Allegheny Co.	McComas, W. Va.	225	Amer. Coal Clean. Corp.	Pneumatic separator and tube type dust collecting system.
American Coal Company of Allegheny Co.	McComas, W. Va.	50	Roberts & Schaefer	Menzies Hydroseparator.
Bair Collins Co.	Roundup, Mont.	250	Link-Belt Co.	Tipple, screening and loading equipment.
Barnes Coal Co.	Barnesboro, Pa.	500	Roberts & Schaefer	Marcus tipple.
Berger Coal Co.	Lejunior, Ky.	125	Morrow Mfg. Co.	Tipple, screening and loading equipment.
Berwind White Coal Mng. Co.	Windber, Pa.	400	Roberts & Schaefer	Marcus picking table screen and Menzie tandem hydroseparator.
Big Vein Coal Co.	Buckskin, Ind.	125	Roberts & Schaefer	Menzies hydroseparator.
Buckeye Coal & Coke Co.	Devils Fork, W. Va.	100	Roberts & Schaefer	Menzies hydroseparator.
C. C. B. Smokeless Coal Co.	Glen White, W. Va.	400	Fairmont Mng. Machy.	Tipple, screening and loading equipment.
C. C. B. Smokeless Coal Co.	Glen White, W. Va.	175	Koppers Rheolaveur	Rheolaveur plant.
Central Pocahontas Coal Co.	Anawalt, W. Va.	180	American Coal Cleaning	Pneumatic separators—dust collecting system.
Clemens Coal Co.	Minden, Mo.	400	McNally-Pittsburgh	Tipple, screening and loading equipment.
Clinchmore Coal Co.	Clinchmore, Tenn.	100	Morrow Mfg. Co.	Rescreening plant.
Clover Fork Coal Co.	Kitts, Ky.	250	Roberts & Schaefer	Marcus tipple and loading equipment.
Colonial Colliery Co.	Natalie, Pa.	50	Hydrotator Co.	Hydrotator process.
Consolidation Coal Co.	Owings, W. Va.	200	Fairmont Mng. Machy.	Crushing and screening plant.
Consolidation Coal Co.	Byrne, W. Va.	160	Fairmont Mng. Machy.	Crushing and screening plant.
Crystal Block Coal Mng. Co.	Lobata, W. Va.	70	Amer. Coal Clean. Corp.	Pneumatic separator.
Davis Coal & Coke Co.	Thomas, W. Va.	150	Roberts & Schaefer	Marcus tipple and loading booms.
Electro Metallurgical Co.	Alloy, W. Va.	175	Kanawha Mfg. Co.	Tipple.
Elk River Coal & Lumber Co.	Widen, W. Va.	150	Wilmot Engineering Co.	Simplex jigs—washing plant.
Fire Creek Coal & Coke Co.	Fire Creek, W. Va.	125	Morrow Mfg. Co.	Shaker screens and conveyor.
Georges Creek Coal Co.	Hetzel, W. Va.	200	Morrow Mfg. Co.	Shaker screens, loading equipment, rescreen conveyor.
Glen Alden Coal Co.	Wanamie, Pa.	35	Hydrotator Co.	Hydrotator process.
Green River Fuel Co.	Mogg, Ky.	100	Hydrotator Co.	Airsand.
Haddock Mining Co.	Silverbrook, Pa.	225	Chance Coal Cleaner	Chance process.
Hume-Sinclair Coal Co.	Hume, Mo.	300	United Iron Works	Tipple, screening and loading equipment.
Independent Coal & Coke Co.	Kenilforth, Utah	1,000	McNally-Pittsburgh	Tipple, screening, loading equipment, and rescreening plant.
Inland Steel Co.	Wheelwright, Ky.	750	Link-Belt Co.	Tipple, screening, loading equipment, and rescreening plant.
Kingston Pocahontas Coal Co.	Springton, W. Va.	150	Roberts & Schaefer	Menzies hydroseparator.
Koppers Coal Company	Keystone, W. Va.	270	Koppers-Rheolaveur	Rheolaveur plant.
Lamar Colliery Co.	Algonquin, W. Va.	100	Roberts & Schaefer	Menzies hydroseparator.
Lamar Colliery Co.	Lamar, W. Va.	200	Kanawha Mfg. Co.	Tipple, screening, washery, loading equipment and air plant.
Leccony Smokeless Coal Co.	Besoco, W. Va.	50	Roberts & Schaefer	Menzies hydroseparator.
Lehigh Valley Coal Co.	Lost Creek, Pa.	35	Hydrotator Co.	Hydrotator process.
Lehigh Valley Coal Co.	Wilkes-Barre, Pa.	35	Hydrotator Co.	Hydrotator process.
Lehigh Valley Coal Co.	Centralia, Pa.	25	Hydrotator Co.	Hydrotator process.
Lillybrook Coal Co.	Lillybrook, W. Va.	300	Kanawha Mfg. Co.	Shaking screen equipment.
Lillybrook Coal Co.	Lillybrook, W. Va.	300	Morrow Mfg. Co.	Shaker screens, loading equipment and belt conveyor.
Linton Summit Coal Co.	Terre Haute, Ind.	250	McNally-Pittsburgh	Tipple (250 T.), picking tables, loading equipment and Norton washer (150 T.).
Mallory Coal Co.	Mallory, W. Va.	50	Roberts & Schaefer	Menzies hydrotator.
Mallory Coal Co.	Landville, W. Va.	50	Roberts & Schaefer	Menzies hydrotator.
Mead Smokeless Coal Co.	Mead, W. Va.	100	American Coal Cleaning	Pneumatic separator tube type dust collecting system.
Middle Creek Coal Co.	Rickmore, W. Va.	125	Morrow Mfg. Co.	Shaker screens, loading equipt., and scraper conveyor.
Midland Electric Coal Corp.	Atkinson, Ill.	315	McNally-Pittsburgh	Pittsburgh Montgomery coal washing equipment.
Monitor Coal & Coke Co.	Wilkinson, W. Va.	400	Link-Belt Co.	Tipple, screening and loading equipment.
Monroe Coal Mining Co.	Revloc, Pa.	100	Fairmont Mng. Machy.	Rescreening plant.
Montevallo Coal Mining Co.	Aldrich, Ala.	90	Norton Automatic Coal Washer	Norton jigs.
New River & Pocahontas Cons. Coal Co.	Kaymoor, W. Va.	75	Link-Belt Co.	Simon carves coal washing unit.
Penn-Anthracite Mining Co.	Scranton, Pa.	120	Chance Coal Cleaner	Chance process.
Pennsylvania Coal & Coke Co.	Ehrenfeld, Pa.	450	Roberts & Schaefer	Marcus tipple.
Pittsburgh Coal Co.	Sandwich, Ont.	150	Morrow Mfg. Co.	Tipple, screening and loading equipment.
Pittsburgh Coal Co.	Smithton, Pa.	300	Morrow Mfg. Co.	Shaker screens, rescreen conveyor & loading equipt.
Pittsburgh Coal Co.	Houston, Pa.	400	Morrow Mfg. Co.	Loading equipment and refuse conveyor.
Pittsburgh Terminal Coal Corp.	Avella, Pa.	450	Chance Coal Cleaner	Chance process.
Pittsburgh Terminal Coal Corp.	Coverdale, Pa.	900	Chance Coal Cleaner	Chance process.
Pond Creek Pocahontas Co.	Bartley, W. Va.	190	Roberts & Schaefer	Menzies hydroseparator.
Pond Creek Pocahontas Co.	Bartley, W. Va.	350	Link-Belt Co.	Tipple (350 T.), Simon carves washer (150 T.).
Powhatan Mining Co.	Powhatan Point, Ohio	450	Chance Coal Cleaner	Chance process.
Rainey, W. J., Inc.	Uniontown, Pa.	180	American Coal Cleaner	American pneumatic separator & cyclone dust coll. system.
Repplier Coal Co.	Darkwater, Pa.	20	Hydrotator Co.	Hydrotator process.
Republic Steel Corp.	Sayreton, Ala.	170	Montgomery Coal Washer	Montgomery rewash jig.
Sonman Shaft Coal Co.	Sonman, Pa.	250	Link-Belt Co.	Screen and picking table, loading booms.
Susquehanna Collieries Co.	Glen Lyon, Pa.	15	Hydrotator Co.	Hydrotator process.
Susquehanna Collieries Co.	William Penn, Pa.	15	Hydrotator Co.	Hydrotator process.
Stith Coal Co.	America, Ala.	1,000	Montgomery Coal Washer	Montgomery jigs.
Sunshine Coal Co.	Centerville, Iowa	100	McNally-Pittsburgh	Tipple, screening and loading equipment.
Sunshine Coal Co.	Centerville, Iowa	100	McNally-Pittsburgh	Shaking screens, crushing equipt. and loading equipt.
Three Forks Coal Co.	Cassity, W. Va.	150	Fairmont Mng. Machy.	Tipple, screening and loading equipment.
Utilities Elkhorn Coal Co.	Boldman, Ky.	200	Morrow Mfg. Co.	Shaking screens, rescreen conveyor, loading equipment and belt conveyor.
West End Coal Co.	Mocanaqua, Pa.	250	Chance Coal Cleaner	Chance process.
West Kentucky Coal Co.	Sturgis, Ky.	200	American Coal Cleaner	Pneumatic separators, tube type dust collecting sys.
Westmoreland Mining Co.	Hillside, Pa.	500	Roberts & Schaefer	Tipple, screening and loading equipment.
Westmoreland Coal Co.	Irwin, Pa.	350	Roberts & Schaefer	Menzies hydroseparator and screening plant.
Winifrede Collieries	Winifrede, W. Va.	125	Kanawha Mfg. Co.	Tipple and screening equipment.
Yukon Pocahontas Coal Co.	Yukon, W. Va.	300	Roberts & Schaefer	Menzies hydroseparator.

With the MANUFACTURERS

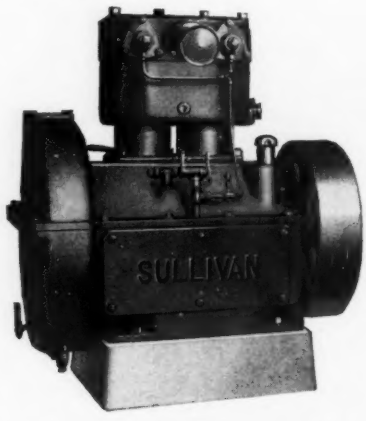
New Sullivan Ball Bearing Compressors

Sullivan Machinery Company announces additions to its line of vertical single acting compressors, in new models, and new capacity ranges.

"WL-1" belt-driven and "V" belt-driven and "WL-11" direct motor-driven compressors are single-cylinder, single-acting units, distinguished by the use of heavy duty ball bearings for mounting on the crank shaft and also by their compactness, simplicity, and substantial construction. The cylinder is cast separate from the frame, and the head, containing the inlet and discharge valves (of the Sullivan "wafer" type) may be attached in any one of four horizontal positions, to secure convenience in piping connections.

These units provide displacement ranges from 27 to 87 cu. ft. per minute. Direct connected units employ flexible external and internal gear couplings between the compressor flywheel and the motor shaft. These compressors are designed for pressures up to 125 lbs. per square inch.

The Sullivan "WL-2" and "WL-4" belt-driven vertical units are available in 2-cylinder and 4-cylinder models, respectively, and are similar to the direct connected 2-cylinder and 4-cylinder units. Capacities range from 119 to 348 cu. ft.



free air per minute. The 4-cylinder units are V type balanced design, the two pairs of cylinders being set at an angle of 90 degrees with a common crankshaft and only two cranks. The use of four smaller cylinders instead of two large ones permits the use of reciprocating parts which weigh only one-third as much as the same parts would weigh in a 2-cylinder unit of equivalent capacity.

Worthington Announces New Type of Horizontal Mine Car Air Compressor

With an overall height above the rails of but 31 in., a new type of horizontal mine car air compressor recently has been developed by the Worthington Pump and Machinery Corporation, Harrison, N. J. When fitted with a Bureau of Mines permissible motor for use in gaseous mines, the overall height is 32 in. These "compressor cars" are built with displacements of from 110 to 200 cu. ft., and operate from one to three rock drills, depending on their size.

For thicker seams or veins, compressor cars equipped with vertical duplex and triplex feather valve air compressors are available. From 40 to 48 in. in overall height above the rails, these compressors have displacements of from 110 to 360 cu. ft. per minute.

The 110 cu. ft. car, fitted with a single, double-acting feather valve air compressor, weighs 6,250 lbs. and has an overall length of 115 in. The compressor has a 6-in. stroke, 7½-in. bore and is self-oiling with inclosed dust-proof Timken bearings. Cooling water for the completely-jacketed compressor is circulated by a 1-in. Worthington centrifugal pump, with a capacity of 22½ gals. per minute. The air receiver has a capacity of 5½ cu. ft. A 20 hp. motor (230-550 volt d. c. or 220-440-550 volt a. c., 60-25 cycle) drives the compressor through a Worthington Multi-V-Drive belted to a heavy flywheel on the compressor shaft.

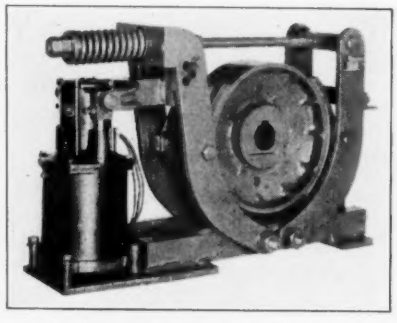
Force feed lubrication on the vertical compressors and Timken bearings on the horizontal types permit these units to operate successfully in off-level positions without danger of burned out bearings.

New Shoe-Type Thrustor Brakes For A. C. Motors

The General Electric Company announces a new line of shoe-type, weatherproof, Thrustor-operated brakes (Type CR9516) for a. c. motors on mill, crane, hoist and similar applications where severe service requirements must be met. These brakes provide quick, cushion-like braking in either direction of rotation with either light or heavy loads, and are adjustable for braking torque over a wide range.

The characteristics of the Thrustor make it particularly well adapted as an operating medium. It operates well within the time required to release and set a brake satisfactorily. In a fraction of the time required for the Thrustor to move through its complete stroke, the motor comes up to full speed and the speed of thrust remains constant during the remainder of the stroke. The uniform speed characteristic also results in a smooth, cushion-like setting when the brake is de-energized. The use of the Thrustor minimizes braking mechanism inertia, shock and noise.

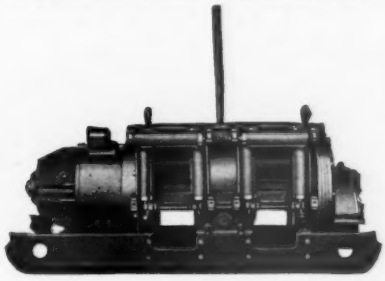
On many crane applications, jogging within a fraction of an inch of hook travel is required. With a Thrustor brake, the motor armature may be rotated when jogged as little as 1/20th of a revolution.



A typical shoe-type Thrustor-operated brake

In many installations, such as on the bridge and trolley motions of a crane where the load is of such nature that a large amount of energy must be expended, it is not desirable to have the brake set immediately after power has been removed from the motor. Time delay for setting between 1 and 20 seconds, or more if necessary, can be furnished by the provision of a small valve inside the Thrustor tank.

Two New Sizes of I-R Hoists



Ingersoll-Rand Co. has added two new sizes to its line of electric double-drum hoists for slushing service. They are the No. 207, of 7½ hp., and the No. 210, of 10 hp. These machines are constructed essentially the same as the 15-hp. and 20-hp. sizes, which have been made for some time.

The size No. 207 will give 2,000 lbs. rope pull at 125 ft. per minute, and size No. 210 will give the same rope pull at 165 ft. per minute. The cable capacity of both drums is 475 ft. of ⅜-in. or 275 ft. of ½-in. for both hoist sizes.

Features of these new hoists include: fully enclosed construction which protects drums, clutch, and brake; brake lock; two-clutch, balanced drum drive, with single lever safety control; enclosed gear chamber, with helical silent type gears operating in a bath of oil; foot-controlled brakes; adjustable, case-hardened cable rollers mounted on Timken roller bearings; steel skid mountings; and accessible external motor.

RandS Secure U. S. Rights for New Type of Concrete Construction

The Roberts and Schaefer Company, engineers and contractors, Chicago, announce they have secured the exclusive rights for the United States of a new type of concrete building construction. Dykerhoff and Widmann, A. G., one of the largest engineering and contracting firms in Germany, have perfected the Zeiss-Dywidag patent concrete "Shell Domes" and "Barrel Shell" roofs for permanent, monolithic, reinforced concrete for large building construction. Their designs enable them to construct thin, reinforced concrete roofs of very large spans without intermediate supports that are superior in design and more economical in construction than any system of fireproof, or even semi-fireproof, construction used in our country.

Many large and important fireproof structures in Germany, France and Belgium have been built during the past five years by Dykerhoff and Widmann. In addition to the merits mentioned above, these buildings are more beautiful in exterior design, with more attractive and serviceable interiors.

To enable the Roberts and Schaefer Company to immediately begin the construction of such buildings and to insure the duplication of the excellent record made abroad, they are bringing experienced engineers from Germany to cooperate with the engineering department of Roberts and Schaefer Company for the designing and building of structures of monolithic, reinforced concrete construction, requiring large roof spans without intermediate supports.

New Explosion-Proof Starter

A new motor starter is now being built by the Electric Controller & Manufacturing Company, of Cleveland, Ohio, known as the "No. 1 Type ZEO Across-the-line Explosion-proof Starter," officially approved by the underwriters for hazardous locations.

The enclosing case is strong and tight enough to prevent the transmission of any flame that may occur within the case to surrounding atmosphere, and the flanged joint between the upper and lower parts of the case is of sufficient length to cool any gases formed within.

The contactor mechanism and overload relays are mounted on a slate base which is removable from the case. The main contacts and overload relay contacts are oil immersed and all working parts are kept well lubricated and protected from corrosion by capillary attraction of the oil.

The terminals are located above the level of the oil so that the oil will not cause deterioration of the insulation on the wires. This design meets the underwriters' requirements because the enclosure is heavy enough to withstand an explosion.

The maximum ratings of this starter are 5 hp., 110 volts and 10 hp., 220, 440 and 550 volts.

Weir Kilby Corp. Acquires Cincinnati Frog & Switch

The Weir Kilby Corporation, of Cincinnati, Ohio, and Birmingham, Ala., manufacturers of railway, mine and industrial track work, has acquired the Cincinnati Frog & Switch Co., of Cincinnati, Ohio. The former president of the Cincinnati Frog & Switch Co., Mr. Charles H. Partington, has resigned and Mr. O. DeG. Vanderbilt, Jr., president of the Weir Kilby Corporation, has been elected president of the Cincinnati Frog & Switch Co., also. The business of the Cincinnati Frog & Switch Co. will be carried on as in the past.

Joy Mfg. Co. Wins Patent Suit

The Joy Manufacturing Company, of Franklin, Pa., on December 18 entered into an agreement with Herzler & Henninger Machine Works in settlement of the suit against the latter under Joy patent 1306064, in which the court held that the construction of the Herzler & Henninger loading machine constituted an infringement of the Joy patent.

The payment of a substantial consideration by Herzler & Henninger was announced by the Joy Company, and the granting of a license covering the future use of the machines in the hands of customers of the former. This license provides for supplying repair parts, servicing, etc., but prohibits rebuilding any of the machines which would be an infringement of the patent.

New Mine Car Safety Blocks

The new M-S-A mine car safety blocks, manufactured by the Mine Safety Appliances Co., of Pittsburgh, consist of three malleable iron castings, two of which, riveted together at the top, comprise a set of jaws which grip the ball of the rail. The third casting acts as a clamp to lock the jaws to the rail in the proper manner. A bulletin, No. 93, describing these may be obtained from the company.

A New Portable, Centrifugal Sump Pump

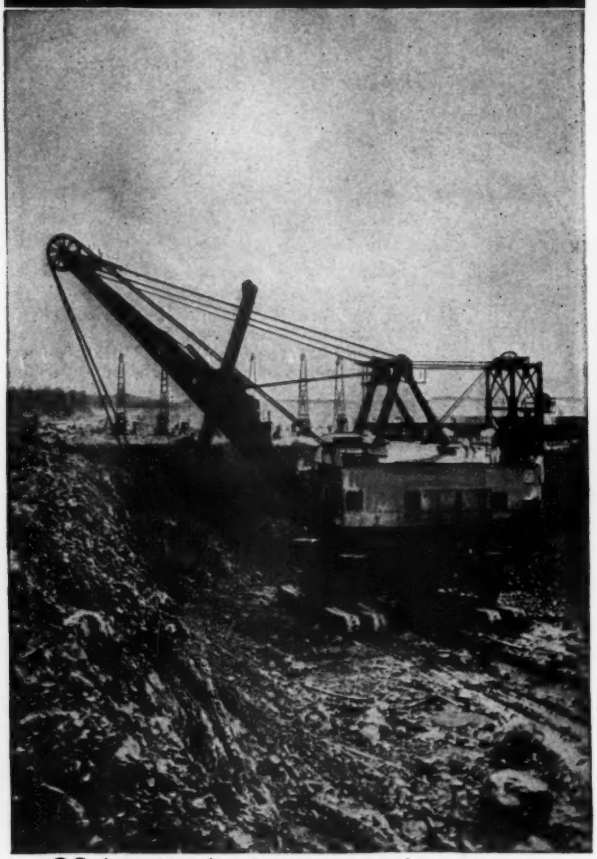
A new, portable, centrifugal sump pump, the Cleco - Deming pump, bearing a number of exclusive features and specifically designed for general work requiring fast and effective expulsion of water, oil and other liquids, has just been produced by the Cleveland Pneumatic Tool Co., of Cleveland, Ohio.

Among its applications in the mining industry are shaft sinking, cutting out a winze and eliminating seepage and drainage where its capacity meets requirements beyond the range of conventional large sump pumps. It is also adaptable as auxiliary equipment to steam, electric and centrifugal pumps.

Production of the pump involves collaboration of the Deming Pump Co., of Salem, Ohio, which supplies the pump, and the Cleveland Pneumatic Tool Co., which provides the motor and will merchandise the unit.

The pump is adapted for service wherever liquids accumulate and compressed air is available and has the operating power unit built integral with the pump housing, making a portable outfit easily handled by one (*Continued on page* 49)

AMERICAN
STEEL & WIRE COMPANY
WIRE ROPE



SO important is wire rope to industry—on excavating machines—on hoists—on elevators—and for a thousand and one purposes—that its users can afford only to specify a brand of proved dependability, economy and long life. Because of its outstanding records—and the known reliability of its maker—American Steel & Wire Company American Wire Rope will be found on most equipment where service requirements are severe.

Made by the Largest Wire Rope Manufacturer in the World

The illustration shows American Wire Rope in use on the world's largest electric shovel.

1831 — 1931

AMERICAN STEEL & WIRE COMPANY

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

208 South La Salle Street, Chicago — And All Principal Cities

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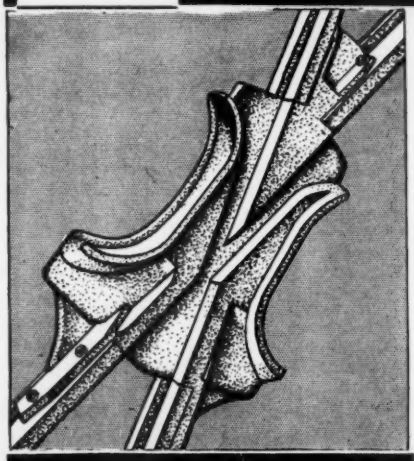
MINE CARS
FROGS : SHAKER
DRIVING EQUIPMENT : SWITCHES

EGYPTIAN
MINING EQUIPMENT



ITS EXTREME DURABILITY, SIMPLICITY OF DESIGN, AND UNUSUALLY LOW COST, MAKE THE REID SAFETY-FROG THE IDEAL TRACK EQUIPMENT FOR EVERY KIND OF MINE SERVICE.

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Heavy Duty Cages

All steel cages for heavy, rapid and continuous hoisting. Most modern design combined with unusual structural strength. Protected by automatic safety features. Send for further details of these reliable and efficient cages in Bulletin 52.

Holmes equipment includes Sheaves, Coal Lowering Spirals, Electric Car Retarders, Hoists, Handling and Weighing Equipment and Complete Tipples

ROBT. HOLMES & BROS., Inc., Danville, Ill.

(*Continued from page 47*)

man. The motor of the pump is operated by compressed air and is automatically lubricated from a reservoir located in the cylinder body. The pump performs while entirely or partially submerged.

The air consumption is from 15 to 20 cu. ft. per minute less than any similar type of rotary pump. With a 20-ft. head, the capacity of the C-D pump is 142 gals. a minute at 90 lbs. air pressure.

The unit weighs 36 lbs. Its outlet connection is a 2½-in. standard pipe thread and its air inlet is ½-in.

Promal Castings Book Issued

Link-Belt Company, Indianapolis, Ind., are distributing a beautiful book devoted to Promal castings. Promal, which is a metal originally developed for Link-Belt's own use in manufacture of conveying and power transmitting chains, is now available in casting form for the use of the designer and producer of machines, parts, etc., where the inherent characteristics of Promal are an advantage or requisite.

This new book, No. 1250, illustrates and describes Promal, shows its various applications for other purposes than chain; gives a comprehensive description of its qualities and technical data concerning it.

The Mining Safety Device Company Bowerston, Ohio, manufacturers of mine car control devices, have announced the appointment of J. A. Malady, Pittsburgh, Pa., as sales representative in Western Pennsylvania, Maryland, and Northern West Virginia.

Goodman Buys Conveyor Sales

The Goodman Manufacturing Company, of Chicago, has purchased the business and good will of the Conveyor Sales Company, Inc., of New York, and has taken over the manufacture and distribution of all products of that corporation known to the mining industry under the trade name of "COSCO." The Conveyor Sales Company was organized in 1925 by the late R. A. Walter.

Safety Fuse Booklet

Ensign Bickford Company, Simsbury, Conn., has just issued a 22-page booklet entitled "Prevention of Blasting Troubles the Proper Care and Use of Safety Fuse." The book emphasizes precautions that will prevent misfires, premature shots and burned holes, and presents illustrations of the right and wrong methods. Copies may be had upon request.

The Deister Concentrator Co.

In order that no misunderstandings or lack of knowledge of facts may exist in any sections of the mining industry the Deister Concentrator Company has issued the following statement:

The Deister Concentrator Company, incorporated 1906, is the original mining equipment company operating in Fort Wayne, Ind., under that or similar style. Throughout 25 years of uninterrupted manufacturing and service specialized to separating equipment, the Deister Concentrator Company has produced and marked under exclusive rights, patents or patents pending: Deister concentrating tables, Deister-Overstrom ore concentrating and coal washing tables, Deister and Overstrom self-oiling table head motions, Leahy no-blind vibrating screens, Concenco foundry screens, Concenco flat pickers. It also has produced and continues to manufacture and sell classifiers and other equipment under the Concenco Products trade-mark.

The Deister Concentrator Co. has at no time relinquished or sold its patents or rights to the above equipment; and since its inception under the original Deister patents has produced or acquired all other patents covering extensive improvements to its equipment and for new equipment which the company owns or controls exclusively.

New Paving Breakers

Ingersoll-Rand Co., New York, has issued a new 20-page, illustrated catalogue, Form No. 4364, on paving breakers and pile drivers for sheet piling. It describes four sizes of paving breakers, two of which, the 37-pound L-54 and the 80-pound R-63, have been added to the line in recent months. It also contains material on two new pile drivers, the R-63 and the R-30.

The Webster and Weller Mfg. Companies announce the appointment of H. W. Haapanen as district representative in the West Virginia mining territory, with headquarters at Charleston.

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May 2-7, 1932

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THE AMERICAN MINING CONGRESS

See these lines

This is an unretouched photograph of a screen operating at full speed on test rack

... they are both the same width. The line "A" in the cross frame shows minimum vibration on support frame.

- The line "B" shows effective vibration on screen body and screen cloth.
- The spring and cable suspension as designed and adopted by Allis-Chalmers removes all vibration from building.
- We will be glad to send a copy of Bulletin 1470-C describing these screens or to assist in solving your screen problems.

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